

Baldy Mountain Landscape Resiliency and Habitat Improvement Project
Biological Assessment¹
Ouray Ranger District, Grand Mesa, Uncompahgre, and Gunnison National Forest



Prepared by:

Submitted to:

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Date:

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¹ Meets the standards for both a Biological Evaluation (FSM 2672.42) and Biological Assessment (50 CFR 402.12(f)).

Introduction

The purpose of this document is to present the analysis and determination of effects of the alternatives on federally listed species (endangered, threatened, and proposed) and Forest Service sensitive species (FSM 2670.31-2670.32).

This biological evaluation report (BE) conforms to legal requirements set forth under section 7 of the Endangered Species Act (ESA) (19 U.S.C. 1536 (c), 50 CFR 402.12 (f) and 402.14). Section 7(a) (1) of the ESA requires federal agencies to use their authorities to further the conservation of listed species. Section 7(a) (2) requires that federal agencies ensure any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of federally-listed species, or destroy or adversely modify designated critical habitat.

Forest Service policy requires that a review of programs and activities, through an effects analysis document (referred to in current Forest Service policy as a biological evaluation or BE), be conducted to determine their potential effect on threatened and endangered species, species proposed for listing, and Regional Forester-designated sensitive species (FSM 2670.3). Under the ESA, the effects analysis report is called a biological assessment (BA) and must be prepared for federal actions that are “major construction activities” to evaluate the potential effects of the proposal on listed or proposed species and critical habitats. The contents of the BA are at the discretion of the federal agency and will depend on the nature of the federal action (50 CFR 402.12(f)). A BE may be used to satisfy the ESA requirement to prepare a Biological Assessment. Preparation of a Biological Evaluation as part of the NEPA process ensures that TEPS species receive full consideration in the decision-making process.

This document is also intended to display types of information specific to analyzing projects under the Southern Rockies Lynx Management Direction (SRLA). The aim is to help ensure that the appropriate information is used in the effects analysis and provided to the U.S. Fish and Wildlife Service that leads to streamlined consultations on SRLA projects.

I. DESCRIPTION OF THE PROPOSAL

The intent of this project, hereinafter referred to as the Baldy Mountain Project, is to treat existing vegetation including pinyon, juniper, aspen, and mixed mountain shrubs to benefit wildlife habitat; reduce fuels both within and outside of the wildland urban interface; and improve landscape resiliency. This will be accomplished by mechanical and hand crew thinning and using prescribed fire. Reintroducing fire to the ecosystem will reduce the risk of large catastrophic wildland fire and other disturbances and subsequent post-disturbance effects such as flooding and soil erosion. The project area provides habitat for multiple species including Rocky Mountain bighorn sheep, elk, and mule deer.

The need is to create openings and additional edge habitat and increase the quality and quantity of grazing and browsing opportunities for big game and to reduce hazardous fuels. This area has been largely free of disturbance for some time and the resulting mountain shrubs and trees are thick and moving towards a decadent state with little understory and providing little quality browse.

The Forest Service and cooperators propose to treat up to 6,104.6 acres amongst multiple vegetation types within the Baldy Mountain Landscape Resiliency and Habitat Improvement Project Area. The project area is located approximately 2 miles east of the town of Ridgway and east to the Uncompahgre Wilderness boundary. Hwy 550 is largely the western boundary which

runs south to approximately 1.5 miles north of the City of Ouray Colorado (See Figure 1 Below). This proposal is the result of collaboration between the U.S.D.A. Forest Service, Bureau of Land Management (BLM), Natural Resources Conservation Service (NRCS), the Mullin's Ranch, and multiple other landowners. The project area includes National Forest System (NFS) lands, Bureau of Land Management (BLM), and private lands. Treatment polygons occur within each of these land ownerships. NRCS has been working with the Mullin's ranch for the past several years to improve wildlife habitat on their property which is the northern portion of the project area. The overarching objective of the treatments is to improve wildlife habitat by: restoring and maintaining landscapes across all jurisdictions increasing the quality and quantity of available browse; diversifying age classes amongst trees and shrubs; regeneration and resiliency of existing aspen stands; developing water sources; and creating more edge habitat. In turn, increasing the browsing and grazing opportunities will reduce competition among the different wildlife species and between wildlife and livestock as well. Secondary benefits of the project include: reduction of hazardous fuels, decreasing the possibility of a large catastrophic wildfire in the area, and protection of adjacent wildland urban interface resources.

Treatment methods could include, but are not limited to, using brush masticating machines, heavy equipment to aid in the creation of fire lines and improve temporary access for masticators, hand tools including chainsaws, and prescribed fire for implementation. Treatments will vary depending on slope, aspect, and existing vegetation. Implementation for this project is planned to begin in the late summer or fall of 2021 and continue for approximately 5 years. The treatments will be maintained into the future at an appropriate interval to maintain the habitat effectiveness and reduce the risk of wildfire to private property and infrastructure. Treatments would be maintained at an approximate 10-20 year interval. Treatment types are summarized below in Table 1.

Table 1. Treatment types by ownership and within the Baldy Mountain Roadless Area.

Activity	Acres/Miles/Items				
	Forest Service	CO Roadless	BLM	Private	Total
Rx Fire Acres	1,075.8	869.8	525.6	661.8	2,263.2
Mechanical Acres	606.9	128.4	347.6	1,289.5	2,244
Mechanical Option	77.6	59.7	1	419.4	498
Hand Crew Acres	487.6	450.9	252.4	85.8	825.8
Buffer Rx Fire 100 Ft Acres	101.3	75.5	84.2	88.1	273.6
Temporary Access Miles	0.92	0	0.90	0.00	1.82
Water Development Items	0	0	0	1	1
Total Acres	2,349.2	1,584.3	1,210.8	2,544.6	6,104.6

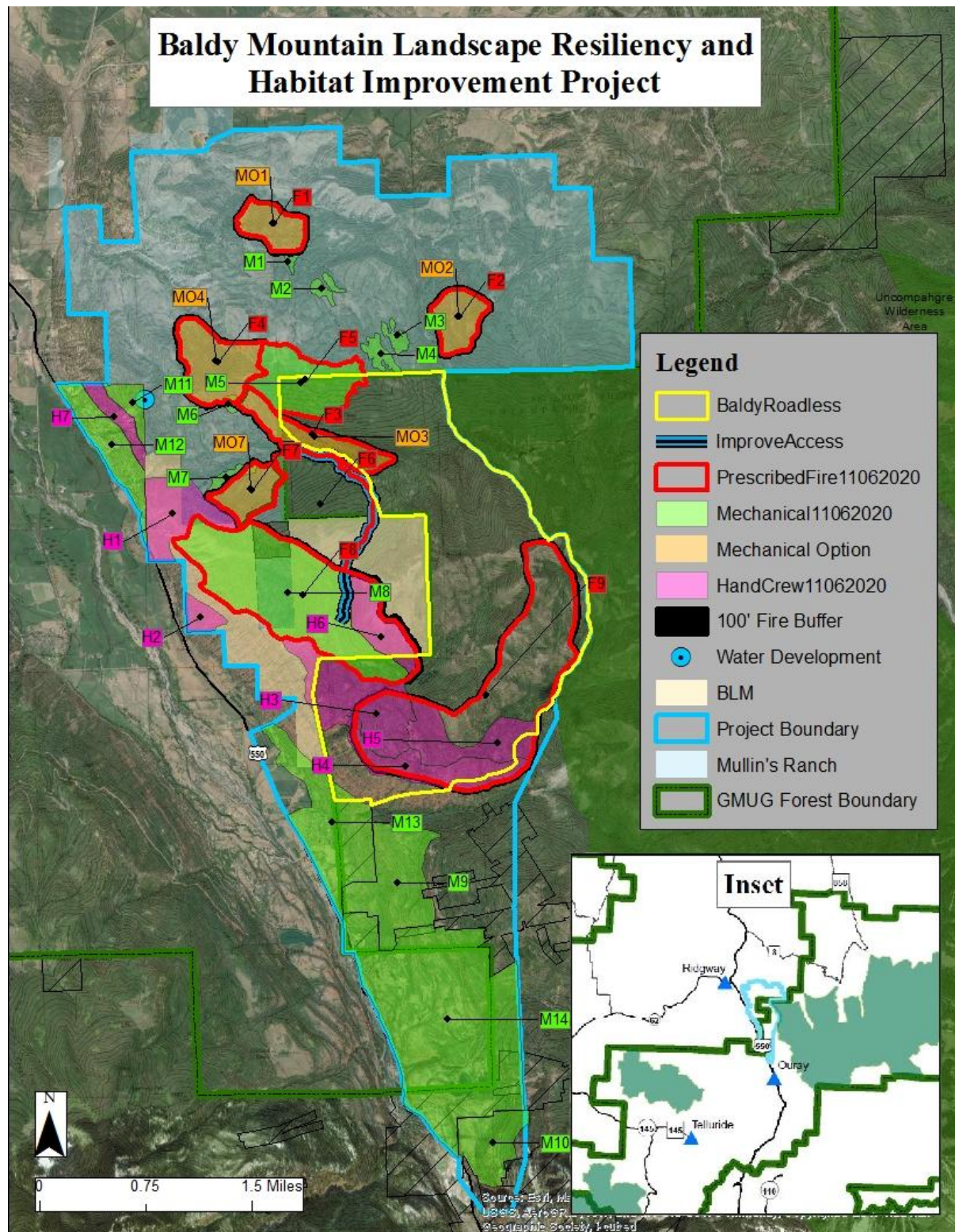


Figure 1. Baldy Mountain Project Overview Map.

Proposed Action

The mid to low elevation north facing slopes within the area of proposed mechanical treatment units M1-M7, and prescribed fire units F1, F2, F4, F5, and F7 (refer Figure 1) are dominated by mixed mountain shrubs including large savannah-type oak. As the elevation increases these vegetation types transition into primarily aspen and some mixed conifer. In these lower elevation

shrub and oak communities, mechanical treatments and or prescribed fire would be implemented. Mechanical treatments would be completed by a hydroaxe, brush-hog, or another similar brush masticating machine. Focus would be on conserving the large oak by reducing ladder fuels around these stands. In the prescribed fire units (F1, F2, and F4) focus would be on burning a portion of these areas to open the canopy of thick dense shrubs, diversifying age classes, and using lighting techniques that would conserve the large oak. These units are also typed as Mechanical Option (MO1, MO2, and MO4) which means that we would have the option to also treat these areas mechanically either before burning or after burning or just treating mechanically altogether. This option is in place in the event that: we don't hit our burn window, we don't have the personnel to burn, or we don't meet the vegetative objectives from burning alone. The results would be a mosaic of treated and untreated vegetation. Mechanical treatments in Unit M5 would be followed by prescribed fire while conditions still warrant a low-moderate intensity burn that would foster conservation of the mature oak but would further define edges and promote multiple age-classes. The reduction of shrubs will promote increased grass and forb production and the regenerating shrubs will provide excellent browse for ungulates. Mechanical treatments could take place from summer through fall. Mechanical treatments in Gambel's oak should occur during the oak growing season when carbohydrate reserves are low in roots and the oak is growing between June-September. This will result in a less vigorous re-sprouting and growth over the first few years to extend the life of the mechanical treatment. These north facing slopes would likely be burned in the fall after adjacent mechanical and prescribed fires on south facing slopes are implemented.

The mid to low elevation south and west facing slopes within the area of proposed treatment units M8-M10 and F3 and F8 are dominated by pinyon and juniper and mixed mountain shrubs. Treatments would include mechanical and or prescribed fire. Spring burning would be ideal for these areas while the north facing slope over the ridge is still holding enough moisture to aid in holding the fire on the south facing slopes. Fall burning is also a possibility with control lines and treatments on adjacent slopes already completed. These areas would generally be treated before burning on the north face of the slope occurs (where there is planned prescribed fire on the north slopes). Objectives in these areas are: reduce density of pinyon and juniper, promote grass and forb production, create more openings, and diversify the age class of mountain shrubs. The flatter lower elevation within the area of proposed treatment unit F8, are a mixture of pinyon, juniper, and mixed mountain shrubs. This area would initially be treated mechanically followed by prescribed fire. Hand crews may be used to access some of the terrain for thinning using chainsaws where slopes are too steep for a masticating machine. Objectives include: reducing density within pinyon and juniper stands while promoting grass and forb production, create more openings, diversify age classes of pinyon, juniper, and mountain shrubs. Slash created from hand thinning will generally be piled in the flatter more accessible areas for burning, scattered where broadcast burning will remove them, or laid parallel to the slope in steep areas to aid in the retention of soil and creation of seed beds for seed. This work will increase habitat effectiveness for bighorn, improve their winter range habitat and encourage bighorns to move away from the highway by creating quality browsing areas within and adjacent to good escape terrain.

The area in the vicinity of Unit F6 is composed primarily of mixed mountain shrubs in the lower elevations near the unit boundaries and dominated by aspen in the higher elevations. Much of the aspen in this unit is at a climax age class in which the older trees are dying and falling over. Natural re-sprouting of aspen in this area is limited. This area is proposed for treatment using prescribed fire. Objectives include: increasing aspen resiliency by promoting the sprouting of aspen, diversifying age classes of shrubs and aspen trees, the creation of openings, and grass and forb production.

The areas identified as Hand Crew (Units H1-H5) are designated in areas in which the terrain is too steep to treat using heavy machinery. Some of these areas may be accessible with heavy equipment and will be masticated where appropriate. These are mostly on south and west facing slopes and will benefit bighorn sheep winter range habitat. The primary vegetation type in these areas is pinyon and juniper. Treatments will create small openings and corridors through which bighorn sheep can travel. These treatment areas will be seeded with a wildlife mix of native seed. Some hand piles may be created for burning but most trees will be left and laid parallel to the slope to aid in the prevention of erosion and create microsites for seed germination. Objectives include: creation of openings and corridors through which bighorn sheep can travel, increase grass and forb production, improve bighorn sheep winter range.

Prescribed fire unit F9 is composed of pinyon and juniper at the lower elevations and mixed mountain shrubs, aspen, mixed-conifer and open parks at higher elevations. The boundaries of the east and west ends of this unit are system horse and foot trails which would act as fire line to bare mineral soil and aid in burning within the unit. The objectives include: Diversifying the age classes of mountain shrubs, pinyon and juniper, the creation of openings, and grass and forb production. These activities will improve bighorn sheep winter and summer habitat.

The southern end of the project area including mechanical units M9 and M10, south of Crooked Tree Gulch, is mostly south facing and steeper. It is composed primarily of pinyon, juniper, and mixed mountain shrubs and open grass meadows. Mechanical treatments followed up with seeding will be the main tools to treat these areas. Objectives include: reducing density of pinyon and juniper promoting grass and forb production, and diversifying age classes in the mixed mountain shrub community. These activities will improve bighorn sheep winter and summer habitat.

Mechanical units M11-M14 are on mostly south and west facing slopes and generally steeper. Vegetation in these units is pinyon, juniper, and mixed mountain shrubs. The focus of these units is reducing fuels within the wildland urban interface (WUI) to lessen the severity of an unplanned fire and subsequent negative effects to WUI resources. Units M13 and M14 will also contain habitat improvement objectives for bighorn sheep. This area is mostly private property and mechanical activities may not occur on all of these acres for a couple reasons. First, the private landowners that did not respond to our scoping documents may not want to participate in fuel reduction activities on their property. Second some of this area may be too steep for machinery to access and will instead be treated with hand crews.

Each of the areas designated for prescribed fire only (F6, a portion of F9 and all Mechanical Option units), involve a buffer of 100 feet in which vegetation will be manipulated mechanically using mastication machinery or by hand using chainsaws to aid in containing the prescribed fire. It is desirable to “feather” in these buffers to blend somewhat with the surrounding vegetation and not be a straight line 100 foot buffer void of vegetation. These buffers will not be included if the Mechanical Option units are treated only with mechanical. They will also be less significant in the Mechanical Option units if these units are first treated mechanically before burning. Fire control lines to mineral soil will fall within these buffers and be constructed using hand tools, an ATV/UTV plow or heavy equipment such as a bulldozer. Fire lines will not be greater than 50 inches wide and all fire lines which may result in resource damage such as erosion will be rehabilitated post fire to mitigate this impact.

There is one spring within the project area which may be developed. The spring is located on the Mullin’s ranch. Development may include a spring box to capture the spring water and a storage tank which would lead to a trough and/or ground level guzzlers. These would benefit multiple species and aid in dispersing wildlife and livestock. Riparian areas that are present where the

spring is located would be protected and maintained by allowing excess water to flow in the same course and manner. The riparian area may be fenced using buck and pole fences if development of the spring results in over-use of the riparian area.

There is one old road two-track road which accesses the southern flatter area (Unit F8/M8) northwest of Crooked Tree Gulch which will be utilized. It originates on the Mullin's ranch and is on approximately 0.92 miles of National Forest and 0.90 miles of Bureau of Land Management Land. It is unknown what this route was used for originally across the public lands but it may have been created to install antennas used for television reception in the Town of Ouray. This route may need some improvements in order for a masticator machine to access unit F8/M8. The road template is still in good shape and improvements would entail widening in three locations where the road narrows to approximately 10 feet wide. These improvements may be completed by a bulldozer and or an excavator and access will be decommissioned or returned to its previous state by ripping and seeding, and or barricading with a gate, boulders or other native materials using heavy equipment.

Mechanical, prescribed fire, hand work and a combination of the three treatment types will be used within the project area. This is a multi-year project with implementation planned to begin during the late summer or fall of 2021 and take 3-7 years to complete. Maintenance burning will take place into the future at a 10-20 year interval, depending on site productivity, to maintain the quality of the habitat over time and the protection of WUI resources. Treatment areas identified on the accompanying map show general locations and sizes. The final size and location of each treatment will be finalized during the actual implementation planning. Fire control lines to mineral soils and areas that are heavily disturbed will be rehabbed and seeded with a native wildlife seed mix. Rehabbing will include redistributing topsoil and organic matter over the disturbed surface to aid in seed establishment.

Alternatives

There are two alternatives being considered for this proposal. The first is the No Action Alternative in which no management activities being proposed will occur. The second alternative, the Preferred Alternative, entails moving forward with all of the proposed activities.

Management Direction

The management direction on all Forest Service lands falls under Management Prescription 5A. Management emphasis is on winter range for deer, elk, pronghorn, bighorn sheep, and mountain goats. Treatments are designed to increase forage production of existing grass, forb, and browse species or to alter plant species composition. Prescribed burning, seed for wildlife and range, spraying, planting, and mechanical treatments may occur. Browse stands are regenerated to maintain a variety of age classes and species. Winter range is managed to produce wildlife habitat capability greater than or equal to 90 percent of potential. Range is managed for a mid-seral or better condition. Investments in compatible resource activities occur. Livestock grazing is compatible but is managed to favor wildlife habitat. Structural range improvements benefit wildlife. Management activities will meet adopted VQO. New roads other than short-term (temporary) roads are located outside of the management area. Short term roads are obliterated within one season after intended use. Existing local roads are closed and new motorized recreation use is managed to prevent unacceptable stress on big game animals during the primary big game use season. The BLM management priority for their area of the project is for big game. Their Resource Management Plan suggests to maintain and enhance big game priority habitats.

The Mullin's ranch has also been managing their property for wildlife habitat and were the landowners who approached us at the project's inception. They have already completed hundreds of acres, in partnership with the Natural Resource Conservation Service (NRCS), of habitat improvement activities designed to benefit big game and other species on their property. They raise cattle and carry both the BLM and FS grazing permits on adjacent public lands where treatments are also proposed.

The project area from Highway 550 east to the BLM and FS Boundary is mostly flat with south and west facing slopes. This area is primarily private property with mixed ownership. Most of these properties have single family homes and other various outbuildings and infrastructure. Some of this area has been identified within the Ouray County, Colorado Community Wildfire Protection Plan (2011) as communities at risk from wildfire (See Figure 2.)

Project Design Features

The following design features would be included to provide for consistency with the Forest Plan and other guidance, and or they would minimize potential impacts to the applicable resources. During implementation, if changes are needed to optimize treatment effectiveness, the implementation project lead (Foresters/Contract Administrators) will work with the corresponding specialist to come up with a solution to maintain the intent of the design feature.

Specific Design Features Include:

1. Gambel's oak
 - a. Focus location of mow leave areas where there is Gambel oak greater than or equal to 6" diameter at root collar (DRC).
 - b. Do not cut Gambel oak greater than or equal to 6" DRC unless it is located within 1 chain (66 feet) of control lines.
 - c. Cut Gambel oak when it is leafed out (June - September).
 - d. Treat ladder fuels around stands of mature savannah type Gambel oak in burn units.
2. Masticate mountain shrubs in a mosaic pattern leaving approximately 1/3 to 2/3 in untreated islands ranging in size from 1/10 to 2 acres in size.
3. Minimize leave areas within 1 chain (66 feet) of control lines of 30 feet from dominant canopy trees.
4. Where ponderosa pine, Douglas fir, Engelmann, and blue spruce is present, masticate all ladder fuels within 20 feet of the canopy drip line to prepare the pine to survive Rx fire.
5. Avoid cutting straight lines, especially along fences or roads.
6. Keep fire out of timbered drainages
7. Burn mechanically treated areas within 1-5 years following treatment. After initial burn put the units in a 10-15 year burning rotation cycle.
8. If operationally possible burn mowed areas in June when the Gambel oak is leafing out.
9. Do not create fire lines that are greater than 50 inches in width within the project area.
10. Do not create treatments which would draw bighorn sheep in closer proximity to wintering domestic sheep on private property to the north.

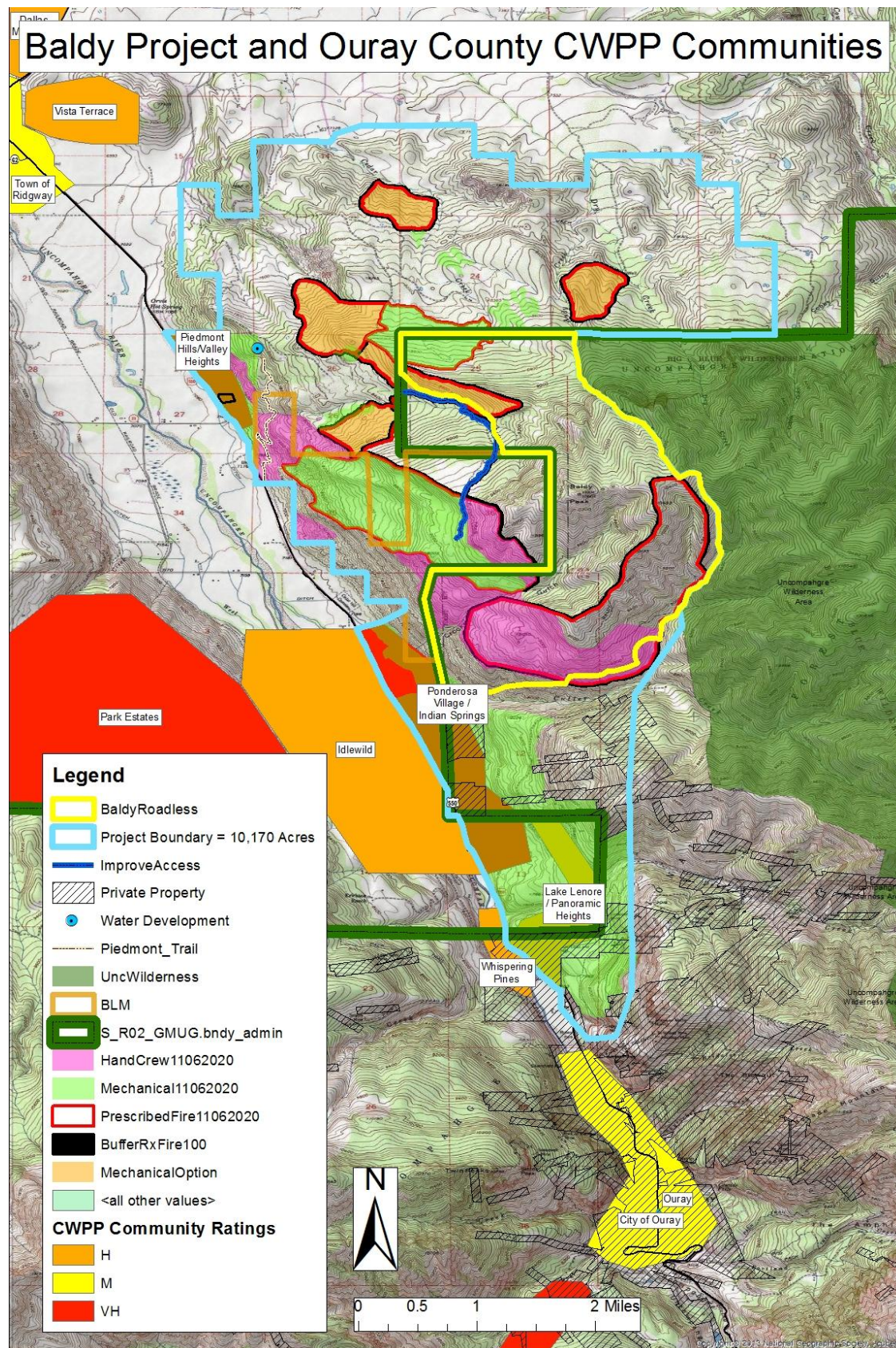


Figure 2. Ouray County Community Wildfire Protection Plans and ratings.

11. Contact permittees and notify public in advance of activities especially prescribed fire.
12. Seed mixes will contain only native species and contain a select variety of grasses and forbs which may include:

Forbs

Silky Lupine
Sulphurflower Buckwheat*
Arrowleaf Balsamroot
Aspen Fleabane*
Western Yarrow*
Rocky Mtn Penstemon

Grasses

Needle & Thread
Prairie Junegrass*
Arizona or Idaho Fescue
Mountain Brome*
Muttongrass*
Sandberg Bluegrass*

*UP Variety sourced locally which may be available

13. Areas which need seeding should be seeded in the late fall, ideally before the first snowfall, the same year that area was treated.
14. Focus seeding in lower elevation and south facing slopes.
15. Attain and operate within state smoke permits when using prescribed fire.
16. Decommission access routes and fire lines within one year of project completion. Restore routes or fire lines to their state before treatment on BLM land.
17. Invasive species will be managed by the respective land manager and landowner pre and post-treatment to limit their spread and establishment.
18. Mastication and other equipment needs to be thoroughly washed prior to entering project site.
19. Project area should be monitored and treated for weeds (as needed) following mechanical treatment.
20. South facing slopes will generally be treated prior to treatments on adjacent north facing slopes to aid prescribed fire activities.
21. Implement activities during time periods to have the least impact on wildlife species and consider: winter range, production areas, migratory bird and raptor nesting periods when those species are present.
22. Soils

- a. When using mechanical fuels reduction treatments, limit tractor and heavy equipment use to periods of low soil moisture or when the ground is frozen/under snow to reduce the risk of soil compaction and disturbance. If this is not practical, evaluate sites following treatment and if necessary, implement appropriate remediation as part of the operation.
- b. When saturated soils conditions existing on access roads or location, or when road rutting becomes deeper than 2 inches, work shall be halted until soil material dries out or is frozen sufficiently for work to proceed without undue damage and erosion to soils, roads and locations.
- c. Surface disturbing actions would be minimized in areas near riparian corridors, particularly in areas of saline soils.
- d. Limit mechanical treatments and prescribed fires to the extent practical to 30% slopes or less.

23. Water Resources

- a. Fueling and maintenance activities would not be conducted within 100 feet of any drainage or watercourse. All spills of fuel and lubricants would be reported to the BLM on BLM lands and to the Forest Service on National Forest lands and should be cleaned up promptly. Fueling of machinery and storage of fuel would be accomplished through established BLM and Forest Service procedures.

- b. Leave a minimum of 100-foot native vegetation buffers adjacent to all drainage features to intercept mobilized sediment.

24. Wildlife

- a. All treatments would be coordinated with CPW in order to determine best methods, share data regarding big game and to help meet the objectives in the CPW Mule Deer Strategy (CPW 2014).
- b. Coordinate with CPW to determine the best timing and operation procedures to limit any possible impacts to big game winter range.
- c. A raptor survey may be required if project area habitat is capable of supporting nesting functions. Should an active nest be located the appropriate timing limitations (species dependent) may be applied, as defined by relevant RMP stipulations.
- d. Vegetation treatments would not occur between May 15 and July 15 to protect nesting migratory birds. An exception may be granted if it is determined that the treatment can avoid migratory bird nesting.
- e. Vegetation treatments would not occur from December 1 to April 30 in mapped big game crucial winter habitat in order to reduce behavioral disruption during the winter season, unless site specific consultation with CPW warrants an exception.

25. Vegetation/Range

- a. Unless other agreements have been documented, any treatment requiring rest or exclusion from livestock grazing shall require at least one year notice for the livestock operator to make alternative arrangements or adjustments for when their allotment(s) is closed to grazing. Written agreements between the BLM and Forest Service effected livestock operators will be made in advance of any treatment activity, and will include a detailed post-treatment recovery plan for grazing.
- b. Mechanical treatments that have little ground disturbance may not require grazing rest. These treatments would be evaluated on a case-by-case basis.
- c. Temporary electric fencing could be constructed to prevent livestock use in treatment areas where applicable.
- d. Under 43 CFR 4180.1 the authorized officer shall take appropriate action as soon as practicable, but not later than the start of the next grazing year, upon determining that existing grazing management needs to be modified to ensure that BLM Colorado Standards for Public Land Health are met. Depending on the type of treatment, appropriate action could include: changes in grazing rotation; changes in season of use; temporary or permanent pasture fencing; or a minimum of two years of rest from grazing. Changes would be made following consultation, cooperation, and coordination with the effected lessees or permittees under 43 CFR 4130.3-3. To the extent possible, the authorized officer shall provide affected permittees or lessees an opportunity to review, comment, and give input during the preparation of any decision that would be used as a basis for making decisions to change, increase or decrease grazing use.

26. Noxious and Invasive Species

- a. The appropriate herbicide design features, standard operating procedures, best management practices, and conservation measures for listed, proposed or candidate threatened or endangered species from DOI-BLM-CO-S050-2012-0029 EA and DOI-BLM-CO-S050-2018-03 EA are incorporated by reference into this EA (Appendix B) These design features included but are not limited to: use of minimum tool in ecological significant areas (Areas of Critical Environmental Concerns, Wilderness Areas, Wilderness Study Areas etc), buffer zones, agricultural areas, and required notification of the public of any proposed project over 150 acres.
- b. Vegetation treatments would be monitored for noxious weed infestation for a minimum of 3 years post-treatment. Any infestations identified would be eradicated

by the BLM as needed, adhering to the UFO Integrated Weed Management Treatments (BLM 2013).

- c. Power wash all vehicles and equipment involved in fuels management activities prior to entering the area to minimize the introduction of undesirable and/or invasive plant species.
- d. Emphasize the use of native plant species recognizing that non-native species may be necessary depending on the availability of native seed and prevailing site conditions.
- e. During times of drought, field-level data collection would be used to verify the level of drought. See Appendix B for a complete description of the drought monitoring protocol. When field verified drought is moderate or worse, additional rest from grazing would be needed post treatment.

27. Visual Resources

- a. All treatment projects would include mitigation measures applied as needed to mitigate impacts to visual resources. (See Appendix C). A Sample List of Design Techniques for Mitigating Visual Impacts)
- b. Edges of mechanical treatments would be designed to repeat natural lines of similar vegetation contrast and to avoid creating straight lines on the edge of the treatments. These measures should be taken in Visual Resource Management (VRM) Class III areas and must be taken in VRM Class I and Class II areas.
- c. The edges of the treatment boundary would be feathered in VRM Class I and Class II mechanical treatment areas with dense vegetation. This means that the vegetation would be thinned from the edge of the treatment in a less dense to more dense thinning gradient that mimics natural vegetation patterns in the treated area.

28. Transportation

- a. Designated/existing routes would be used to the extent possible. If there is a need to create further linear disturbance, the linear disturbance would be rehabilitated, barriers installed as needed and other means of mitigation would be used immediately after the project has been completed to prevent confusion for the general public.

29. Cadastral Survey

- a. The responsible party will identify and protect evidence of the PLSS (Public Land Survey System) and related Federal property boundaries prior to commencement of any ground-disturbing activity. Contact Cadastral Survey to coordinate data research, evidence examination and evaluation, and locating, referencing or protecting monuments of the PLSS and related land boundary markers from destruction. In the event of obliteration or disturbance of the Federal boundary evidence, the responsible party shall immediately report the incident, in writing, to the AO. Cadastral Survey will determine how the marker is to be restored.
- b. Treatments would not encroach onto adjoining private lands other than the Mullin's Ranch and possibly the Griffith property if they agree to be a part of the proposal. Where any part of the treatment is within 1/4 mile of a Federal property boundary, contact Cadastral Survey to evaluate existing title, survey, and use records, determine when boundaries require identification, to select an appropriate method for identifying the boundary.

II. THREATENED, ENDANGERED, AND PROPOSED SPECIES AND DESIGNATED CRITICAL HABITAT CONSIDERED AND ANALYZED

On February 12, 2021, a list of threatened, endangered, and proposed species that may be present in the action area was requested from the U.S. Fish and Wildlife Service using the online IPac Information for Planning and Consultation System. Concurrence with the list of species was received on February 12, 2021. (Appendix A)

The following list includes threatened and endangered species that are located on the Ouray Ranger District of the GMUG National Forest, BLM and private land associated with the project area or that are located adjacent to or downstream of the project and could potentially be affected. No proposed species, candidate species, or designated critical habitat occurs within the action area. A pre-field review was conducted of available information to assemble occurrence records, describe habitat needs and ecological requirements, and determine whether field reconnaissance is needed to complete the analysis. Sources of information included Forest Service records and files, the State Natural Heritage Program database, state wildlife agency information, and published research (citations).

No further analysis is needed for species that are not known or suspected to occur in the project area, and for which no suitable habitat is present. The following table documents the rationale for excluding a species. If suitable but unoccupied habitat is present, then additional survey is needed, or presence can be assumed and potential effects evaluated.

Table 2. Threatened and Endangered species considered.

Common Name	Scientific Name	Status	Known/suspected to be present?	Suitable habitat present?	Designated Critical Habitat present or could be affected?	Rationale if not carried forward for analysis
Mexican spotted owl	<i>Strix occidentalis lucida</i>	Threatened	Yes	Yes	No	
Yellow-billed Cuckoo	<i>Coccyzus americanus</i>	Threatened	No	No	No	No suitable old-growth riparian (cottonwood/willow) woodlands with dense understories are present in the project area. Forest Service, Bird Conservancy of the Rockies, and eBird spatial data was analyzed for species occurrence adjacent to the project area and none were found. Treatment of riparian vegetation including cottonwood and willow is not a component of this project and no treatments are planned in the lower elevation areas adjacent to the Uncompahgre River, where riparian habitat is present but is outside of the project area. If the cuckoo was present in the project area impacts would be mitigated by following applicable design features.
Canada lynx	<i>Lynx canadensis</i>	Threatened	Yes	Yes	No	
Colorado Pikeminnow	<i>Ptychocheilus lucius</i>	Endangered	No	No	No	Does not have suitable habitat within the project area, their range

Common Name	Scientific Name	Status	Known/suspected to be present?	Suitable habitat present?	Designated Critical Habitat present or could be affected?	Rationale if not carried forward for analysis
						is outside the project area and downstream habitats would not be impacted by project activities and no water depletions would occur.
Humpback Chub	<i>Gila cypha</i>	Endangered	No	No	No	Does not have suitable habitat within the project area, their range is outside the project area and downstream habitats would not be impacted by project activities and no water depletions would occur.
Razorback Sucker	<i>Xyrauchen texanus</i>	Endangered	No	No	No	Does not have suitable habitat within the project area, their range is outside the project area and downstream habitats would not be impacted by project activities and no water depletions would occur.
Greenback cutthroat trout	<i>Oncorhynchus clarki stomias</i>	Threatened	No	No	No	Does not have suitable habitat within the project area, their range is outside the project area and downstream habitats would not be impacted by project activities and no water depletions would occur.

III. EXISTING CONDITION

The elevation in the project area ranges from 7,100 feet at Highway 550 just 0.4 miles east of the Uncompahgre River to 10,612 feet at the peak of Baldy Mountain. Treatment acres fall on Forest Service, Bureau of Land Management, and private land. The eastern boundary of the project area is the Uncompahgre Wilderness and the western boundary US Highway 550. The topography is variable and composed of rolling hills, deep canyons, and steep drainages with scattered benches. The north end which is composed of Forest Service land and private property is mostly north facing with the rest of the project area primarily west and south facing. The diversity of elevation, topography, and aspect combine to create a diverse suite of vegetative communities which provide habitat for multiple species.

The north end, south to the Forest and BLM boundary, is the Mullin's Ranch. The Mullins raise cattle and hold the grazing permits on the adjacent Forest Service and BLM land. Multiple habitat improvement projects have occurred over the last 10-20 years including prescribed fire and mechanical thinning. Much of the vegetation is composed of mixed-mountain-shrubs including savannah type Gambel's oak, serviceberry, squaw apple, choke cherry, and snow berry. The lower elevations are composed of pinyon, juniper, and sagebrush parks. As you move south to the Forest Boundary, the vegetation transitions into aspen and dry-mixed conifer including Douglas-fir.

The Bureau of Land Management lands are dominated by steep south and west facing slopes with some north facing slopes off Baldy Peak. The elevation ranges from 7,140 feet near Hwy 550 to 10,350 feet 0.20 miles west of Baldy Peak. This area is composed of pinyon and juniper trees, mountain mahogany and sagebrush at the lower elevations. As you move east and uphill the

vegetation transitions into Gambel's oak, dry-mixed, conifer and aspen on the north-western face of Baldy Peak (Figure 3).

South of Baldy Peak on National Forest land lie two major drainages, Crooked Tree Gulch and Cutler Creek. The south face of these drainages is composed of grass, mixed-mountain-shrubs and aspen at higher elevations and the north face is composed of thick dry-mixed-conifer. Insects and disease have impacted the conifer on these north-faced-higher-elevation slopes, including those on Forest Service land, with 15 to approximately 30% of the stand dead. South of Cutler Creek is a mix of private property and Forest Service lands. The area is characterized by flatter terrain at the lower elevations composed of pinyon and juniper and mixed mountain shrubs. This area is bisected by Dexter Creek. As you move east and higher in elevation the terrain becomes steeper and the vegetation transitions to mixed-conifer. Much of the private property in this area are smaller parcels of 0.2 – 10 acres and contain single family homes and outbuildings.

This landscape has largely been free of natural disturbances such as wildfire for the last several decades and perhaps much longer. There are 7 recorded instances of wildfires (6 from lightning strikes 1 campfire) from 1972 to 2017. None of these fires were larger than 0.1 acres. Only one of these occurred north of Crooked Tree Gulch in the vicinity within a proposed prescribed fire area. This lack of disturbance has resulted in thick and dense vegetation prone to a catastrophic disturbance.

Under the ESA, the environmental baseline includes past and present impacts of all federal, state, and private actions and other human activities in the action area, the anticipated effects of proposed federal projects in the action area that have already undergone formal or early Section 7 consultation, and the impact of state or private actions that are contemporaneous with this consultation (50 CFR 402.02). There have been various activities that have occurred in the project area and activities that are being planned. Cattle grazing does occur across the landscape on the Mullin's property, Forest Service, and BLM lands. Multiple types of recreation occur mostly on the southern end of the project area north to Baldy Peak. These activities include guided and un-guided horseback riding and snowmobile tours, hiking and hunting. The Mullin's have implemented multiple habitat improvement projects on their property involving mastication and prescribed fire. Some of the private property in the project area has been developed mostly with home-building and road improvements. In the 1980s the Forest Service had completed some habitat improvement on the benches between Cutler Creek and Crooked tree gulch including the application of fertilizer to improve vegetative response to treatments.

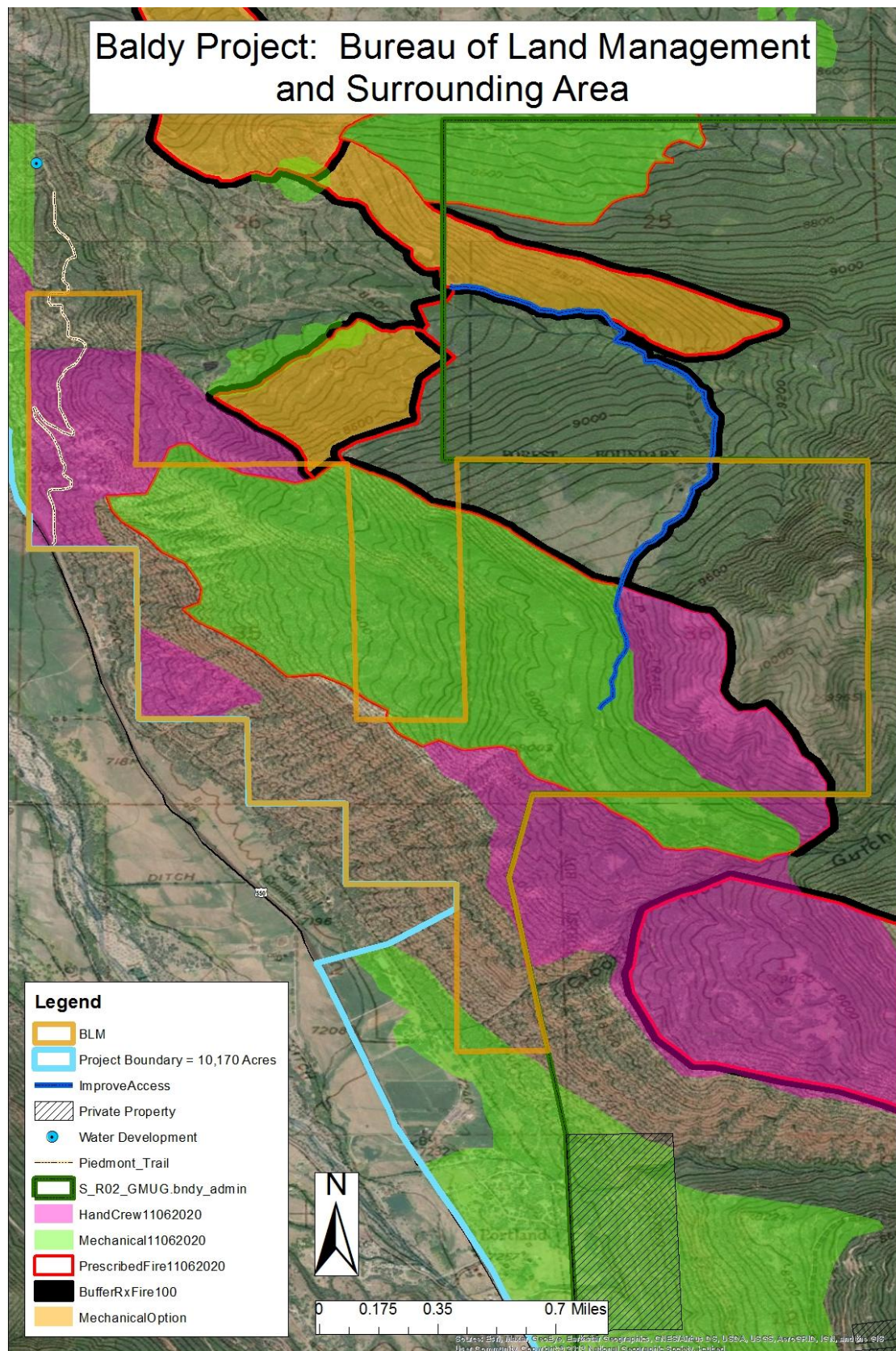


Figure 3. Bureau of Land Management area of the Baldy Mountain Project.

IV. CONSULTATION TO DATE

No previous consultation has been conducted for this project. This project represents a tiered consultation from that conducted under the Southern Rockies Lynx Amendment (SRLA) decision and tiers to the SRLA biological opinion because the anticipated effects from the proposed action are consistent with those anticipated and analyzed in the programmatic biological opinion. The biological opinion discusses effects in a general way at a broad-scale, programmatic level. As such, site specific effects of the proposed action are discussed and analyzed below.

V. SPECIES INFORMATION

Mexican spotted owl

Strix occidentalis lucida

In 1993, the FWS listed the Mexican spotted owl (MSO) as threatened under the Act. The FWS appointed the Mexican Spotted Owl Recovery Team in 1993, which produced the Recovery Plan for the Mexican spotted owl in 1995 (USDI FWS 1995). The FWS released the final Mexican Spotted Owl Recovery Plan, First Revision (Recovery Plan) in December 2012 (USDI FWS 2012). Critical habitat was designated for the Mexican spotted owl in 2004 (USDI FWS 2004). A detailed account of the taxonomy, biology, and reproductive characteristics of the Mexican spotted owl is found in the Final Rule listing the owl as a threatened species (USDI FWS 1993), in the original Recovery Plan (USDI FWS 1995), and in the revised Recovery Plan (USDI FWS 2012).

The spotted owl occurs in forested mountains and canyonlands throughout the southwestern United States and Mexico (Gutiérrez et al. 1995). It ranges from Utah, Colorado, Arizona, New Mexico, and the western portions of Texas south into several States of Mexico. Their elevational range in Colorado in the Southern Rocky Mountain EMU (see description below in Environmental Baseline) is 5,820 to 9100 feet (Despain et al. 2000). Although the owl's entire range covers a broad area of the southwestern United States and Mexico, it does not occur uniformly throughout its range. Instead, the Mexican spotted owl occurs in disjunct localities that correspond to isolated forested mountain systems, forested canyons, and in some cases steep, rocky canyon lands. When owls occur in forested areas, known owl locations indicate that the species has an affinity for older, uneven-aged forest, and the species is known to inhabit a physically diverse landscape scattered across the southwestern United States and Mexico.

Threats to its population in the United States (but likely not in Mexico) have transitioned from commercial-based timber harvest to the risk of stand-replacing wildland fire. Recent forest management has moved from a commodity focus and now emphasizes sustainable ecological function and a return toward pre-settlement fire regimes, both of which have potential to benefit the spotted owl. Southwestern forests have experienced larger and more severe wildland fires from 1995 to the present, compared to fires prior to 1995. Climate variability compounded with unhealthy forest conditions may increase negative effects to habitat from fire. In addition, a warming climate will likely expand the range of the mosquitoes that carry the West Nile Virus which has the potential to adversely impact the MSO. The intensification of natural drought cycles and the ensuing stress placed upon overstocked forested habitats could result in even larger and more severe fires in owl habitat (USDI FWS 2013 5-year plan).

Fuels reduction treatments, though critical to reducing the risk of severe wildland fire, can have short-term adverse effects to owls through habitat modification and disturbance. However, high-intensity, stand replacing fires are probably the greatest threat to the MSO. As the human

population grows in the southwestern United States, small communities within and adjacent to wildlands are being developed. This trend may have detrimental effects to spotted owls by further fragmenting habitat and increasing disturbance during the breeding season. Global climate variability may also be a threat to the owl. Changing climate conditions may interact with fire, management actions, and other factors discussed above, such as grazing, to increase impacts to owl habitat. Studies have shown that since 1950, the snowmelt season in some watersheds of the western U.S. has advanced by about 10 days (Dettinger and Cayan 1995, Dettinger and Diaz 2000, Stewart et al. 2004). Such changes in the timing and amount of snowmelt are thought to be signals of climate-related change in high elevations (Smith et al. 2000, Reiners et al. 2003). The impact of climate change is the intensification of natural drought cycles and the ensuing stress placed upon high-elevation montane habitats (IPCC 2007, Cook et al. 2004, Breshears et al. 2005, Mueller et al. 2005). The increased stress put on these habitats is likely to result in long-term changes to vegetation, and to invertebrate and vertebrate populations within coniferous forests and canyon habitats that affect ecosystem function and processes.

Critical Habitat

Critical habitat has been established for the MSO but no critical habitat occurs within or adjacent to the GMUG National Forest. See map inset in Figure 4 below.

Environmental Baseline for Mexican Spotted Owl

The 1995 Recovery Plan established “Recovery Units” in the United States and Mexico. In the Recovery Plan Revision (USDI FWS 2012) these units were renamed to Ecological Management Units (EMUs). Five EMUs occur in the United States and the project area is within the Southern Rocky Mountain EMU but very near to the east-central boundary of the Colorado Plateau EMU. An EMU is defined as a specific geographic area, identified mainly from physiographic provinces, used to evaluate the status of the Mexican Spotted owl and within which to develop specific management guidelines.

Rocky-canyon environments that provide nest, roost, and foraging habitats for Mexican spotted owls are diverse, but also possess common emergent properties. These rocky-canyon habitats are associated with complex vertical and horizontal landscape structure, complex geomorphology, and canyon-forming geologic substrates. Rocky-canyon habitat is typically defined by:

- Canyon walls comprised of steep cliffs that usually extend for at least 1 kilometer (0.6mile) along parallel sides of the canyon reach (Willey et al. 2007).
- Relatively narrow canyon widths (<1 kilometer [0.6 mile] rim-to-rim) (Willey 1998).
- Presence of large cliff faces with complex vertical structuring including numerous ledges and caves that provide locations with cool and shaded microclimates.
- Key geologic layers that form steep, narrow entrenched canyon and cliff complexes. In the CP EMU these formations generally consist of hard sandstones or limestone, but other forms of bedrock can create these conditions within the range of the owl.
- Forest vegetation, when present, that includes riparian, mixed-conifer, ponderosa pine, or pine-oak forests, or pinyon-juniper woodland. Late seral conditions including large trees and multi-storied canopies typically dominate.
- Existing conditions in the area.

Suitable habitat does exist in the project area (Figure 4). The variable topography steep slopes and diverse vegetation meet many of the MSO’s habitat needs. On the southern end of the project area the vegetation transitions into more spruce-fir and higher elevation habitats which are not commonly used. However, shifts in Mexican spotted owl distribution could occur in response to

predicted warming in the southwestern U.S. that may cause elevation shifts in tree species distribution, with many forest and woodland types requiring less precipitation moving up in elevation in response to warmer and drier conditions. This could lead to the local loss of some tree species and/or forest types in much of the southwest, because these forest types frequently occur at the highest elevations available and thus would have no local refugia to which to migrate (DeGomez and Lenart 2006, Archer and Predick 2008, 2012 Recovery Plan). There is currently more evidence for species-range expansion than for range contraction driven by climate change (Dawson et al. 2011). Climate change may also impact owls in canyons if these areas become hotter and drier. Owls in canyons may move up in elevation and microhabitats change, possibly into mixed conifer forest habitat adjacent to canyons and/or northward into currently unoccupied canyon habitat (USDI FWS 2012 Recovery Plan).

The ECOS Environmental Conservation Online System (<https://ecos.fws.gov/ecp/species/8196>) considers the MSO as either occurring or believed to occur in Ouray County Colorado. The closest known MSO population is in Mesa Verde and the nearest recently historical known sighting (2003) is in the Dolores River Canyon, both on the Colorado Plateau EMU (FS GIS Data).

Direct, Indirect, and Cumulative Effects to MSO

Because the Mexican Spotted Owl is not known to occur on the GMUG National Forest or adjacent lands including BLM, and private property there will be no direct, indirect, or added cumulative effects to this species from any of the proposed activities.

With the MSO not known to occur within or adjacent to the project area fuels reduction activities will reduce the risk of a large catastrophic wildfire in the project area. These fuels reduction activities will aid in conserving and improving habitat.

Canada lynx

Lynx canadensis

The Canada lynx was listed as threatened by the U.S. Fish and Wildlife Service on March 24, 2000. Lynx are broadly distributed across most of Canada and Alaska, which combined encompass about 98% of the species breeding range. The contiguous U.S. distinct population segment (DPS) accounts for the other 2% and includes resident breeding populations in the boreal forests of northern Maine, northeastern Minnesota, northwestern Montana/northern Idaho, and north-central Washington. An introduced population also occurs in western Colorado, and several other areas may have historically supported small resident populations. Lynx also have occurred temporarily in many other states, typically during irruptions (mass dispersal events) from Canada when northern hare populations underwent dramatic cyclic declines roughly every 10 years.

A reintroduction program of Canada lynx took place between 1999 and 2006 in Colorado, where a total of 218 lynx captured from Canada and Alaska were released in the southwest part of Colorado in the San Juan Mountain Range. The Colorado Division of Wildlife, which is now called Colorado Parks and Wildlife (CPW), facilitated the reintroduction program and post introductory monitoring. By 2009, 3rd generation Colorado lynx kittens were observed (Shenk, T.M. 2009-2010 Annual Report).

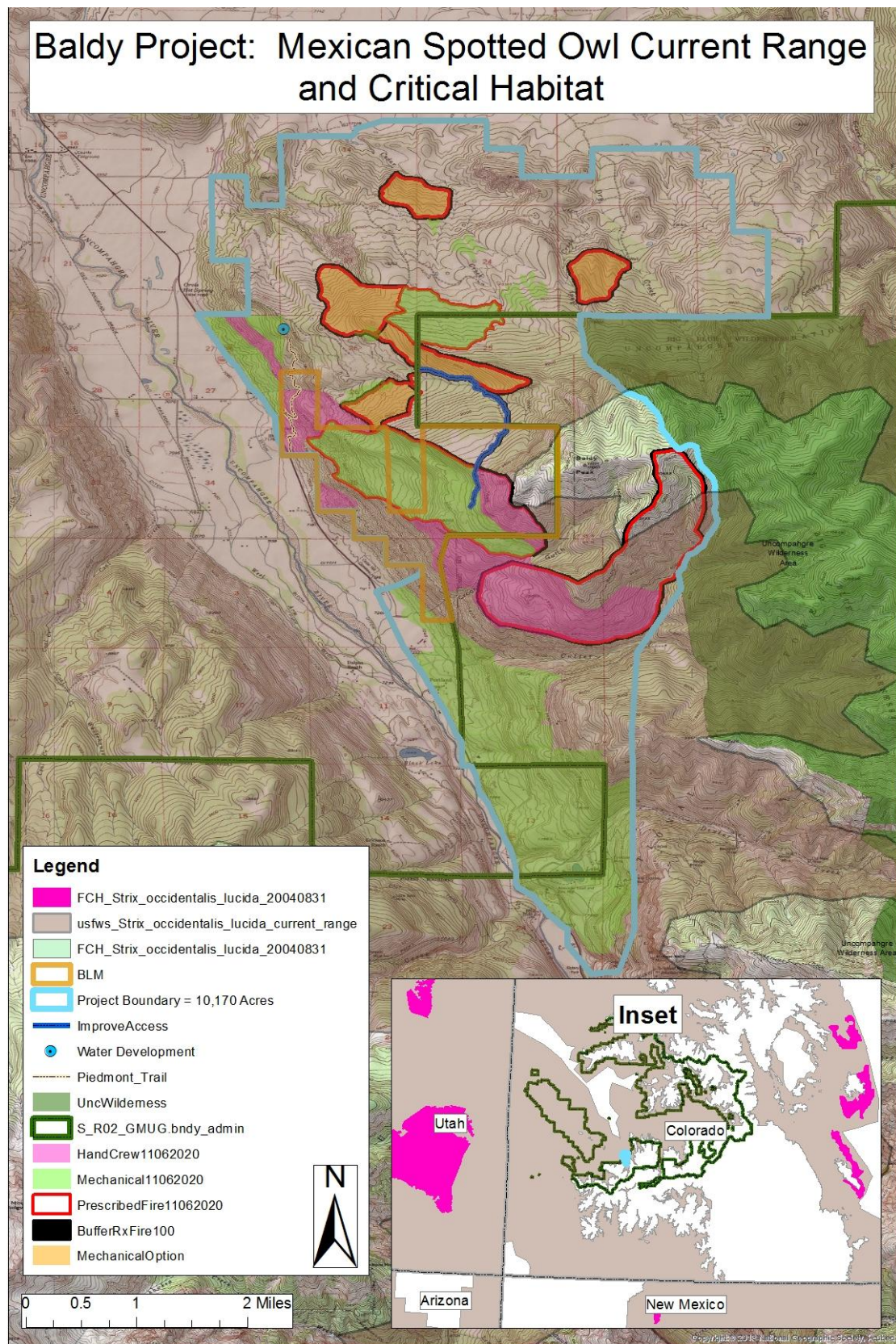


Figure 4. MSO current range in proximity to proposed activities and Federal Critical Habitat in map inset.

Many of the reintroduced lynx were collared and closely monitored the first ten years of the introductory program. The lynx collars were equipped with VHF and/or Argos satellite tracking devices to give their locations. This monitoring effort showed that lynx in the southern Rockies prefer high elevation forests between 9,900 feet and 13,620 feet, that are dominated by Engelmann spruce, subalpine fir, and in some locations (north and central Colorado) lodgepole pine followed by aspen (Theobald and Shenk, 2011). Figure 5 below shows Canada lynx use of the Amphitheater LAU between 1999 and 2006.

Based on breeding surveys, monitoring results, and completion of the program's original goals, CPW declared the lynx reintroduction a success in 2010. Today, an estimated 150-250 Canada lynx are in Colorado. Lynx have been confirmed to be present on the GMUG National Forest by Colorado Parks and Wildlife researches. Researches used radio-telemetry to also confirm reproduction on the GMUG. In addition, the SRLA identifies all lynx habitat for the National Forests in the Southern Rocky Mountains as occupied.

In 2008, the Southern Rockies Lynx Management Direction Record of Decision on the SRLA was published, which integrated the Canada Lynx Conservation Assessment and Strategy (LCAS, Ruediger et al. 2000, Interagency Lynx Biology Team 2013) and Ecology and Conservation of Lynx in the United States Science Report (Ruggiero et al. 2000) into standards and guidelines and amended the Forest Plan (USDA 2008). The purpose and need for the amendment was to establish management direction that conserves and promotes the recovery of lynx, and reduces or eliminates potential adverse effects from land management activities and practices on National Forests in the southern Rocky Mountains, while preserving the overall multiple-use direction in existing Forest Plans. In May 2009, the Forest Service published an Implementation Guide for the SRLA (USDA 2009). The Implementation Guide provided the basis for much of the interpretation of the SRLA used in this analysis.

Most recently, in January of 2018 the U.S. Fish and Wildlife Service announced the availability of the Final Species Status Assessment (SSA, USDI 2017) Report for the Contiguous U.S. DPS of the Canada lynx. The SSA compiles the best available scientific information regarding the historical, current, and potential future conditions for lynx in the lower 48 states. It evaluates the DPS's viability considering climate change, forest management and related regulations, wildland fire management, and other potential sources of habitat loss and fragmentation. The report incorporates the formally-elicited opinions of recognized lynx experts from throughout the DPS range regarding the current and future status of, potential threats to, and likely viability of resident lynx populations in the DPS. Although this document will be referenced in this analysis, current Forest Service direction applies and the analysis will meet the intent of the SRLA.

Lynx are highly mobile and able to disperse long distances. Because of this mobility it is important to maintain connectivity between blocks of habitat. The SRLA requires maintaining habitat within and between LAU and linkage areas. LAUs were developed on the GMUG because they represent the home range of a single female lynx (25-50 square miles) and therefore is the most appropriate scale for project-level analysis (USDA 2008). Connectivity at the LAU-scale is best achieved by minimizing influences of highways that accommodate high volumes of traffic at high speeds and providing for a mosaic of habitat conditions across the landscape (USDA 2008 and Interagency Lynx Biology Team 2013). Mosaics of habitat conditions include dense early seral coniferous and mixed- coniferous-deciduous stands and mature multi-story stands. Habitat connectivity is defined as “cover vegetation” in sufficient quantity and arrangement to allow for the movement of lynx.

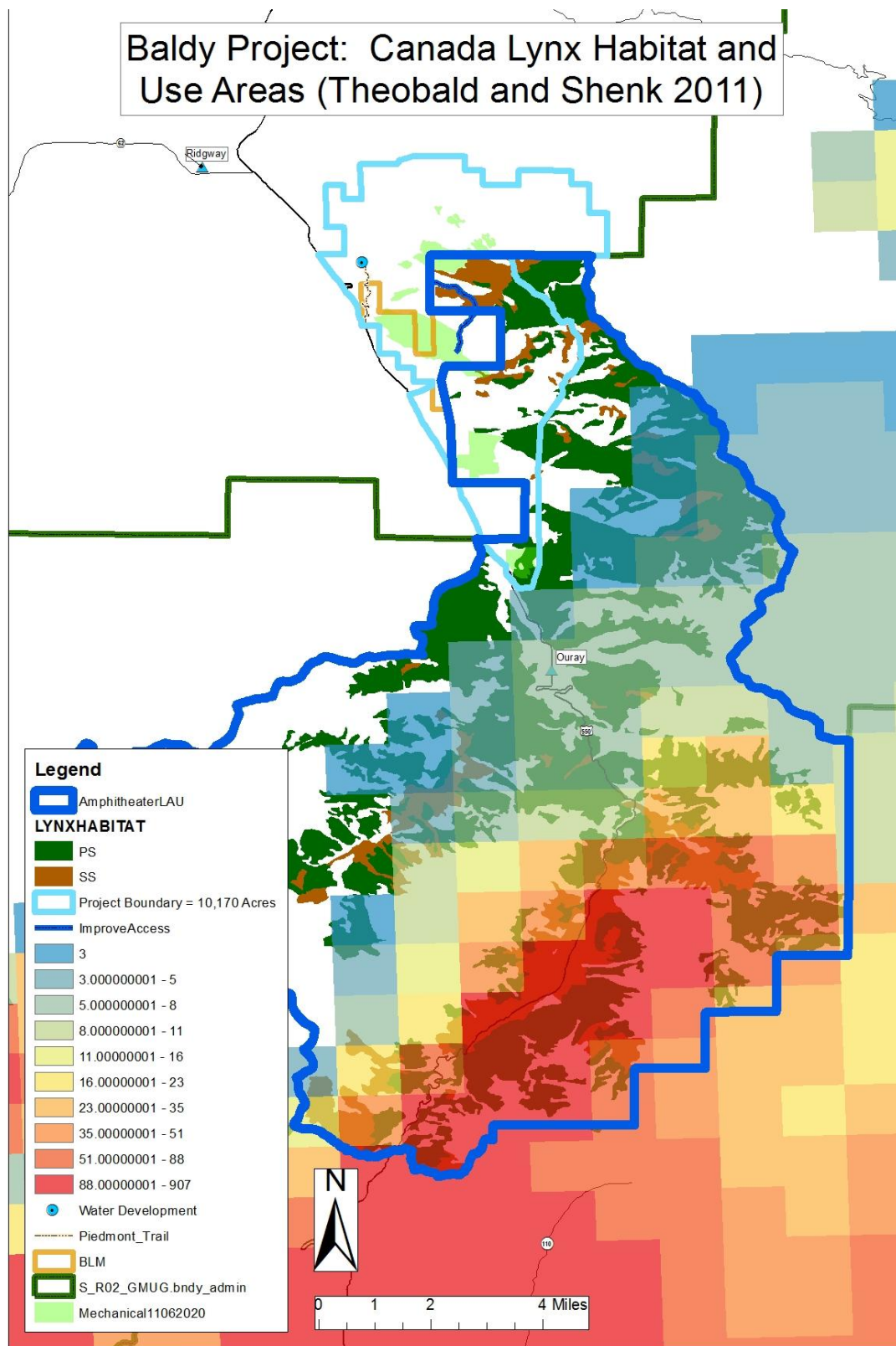


Figure 5. This map identifies low, moderate, and high-intensity lynx use areas and overlap of use areas with the proposed project, based on radio-telemetry data from a subset of the lynx reintroduced to Colorado during the 1999 to 2006 time period (Theobald and Shenk 2011). Low-intensity use is shown in blue, moderate in orange, high in red. Please refer to Theobald and Shenk 2011 for methodology and descriptions of the data and how they conducted their analysis of habitat use. This data may not reflect current lynx habitat use and does not identify travel corridors between habitat use areas.

Narrow forested mountain ridges or shrub-steppe plateaus may serve as linkage between more extensive areas of lynx habitat; wooded riparian communities may provide cover across valley floors. Active management using fire and mechanical vegetation treatments to maintain a mosaic of lynx habitat, in varying successional stages, distributed across the LAU in a landscape pattern that is consistent with historical disturbance processes is a lynx conservation goal.

Critical Habitat

On November 9, 2006, FWS published the final rule for the designation of Canada lynx critical habitat (Federal Register, Vol. 71, No. 217, pp. 66008 to 66061). On Feb. 28, 2008, FWS published a new proposed rule. No National Forest System lands in the Southern Rockies were initially designated, nor were any included in the new proposal to be designated as critical habitat. Therefore, no critical habitat would be adversely modified as a result of implementation of the proposed action.

VI. ENVIRONMENTAL BASELINE FOR CANADA LYNX

This project occurs within the 59,512 acre Amphitheater Lynx Analysis Unit (LAU) (#57). It is not within or adjacent to a lynx linkage area. This LAU contains 26,395 acres of lynx habitat.

Lynx Management Direction

The Canada lynx was listed as threatened on March 24, 2000 (http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=2000_register&docid=00-7145-filed.pdf). In August 2013, the Third Edition of the Canada Lynx Conservation Assessment and Strategy (LCAS) was released, to provide a consistent and effective approach to conserve Canada lynx on federal lands (Interagency Lynx Biology Team 2013). The Canada lynx Conservation agreement (USDA Forest Service & USDI Fish and Wildlife Service 2005) identifies the Science Report (Ruggiero et al. 2000) and the LCAS (Ruediger et al. 2000 – 1st Edition) as including the best available science. In 2008, the Southern Rockies Lynx Management Direction Record of Decision on the Southern Rockies Lynx Amendment (SRLA) was published, which amended the Forest Plan (<https://www.fs.usda.gov/detail/r2/landmanagement/planning/?cid=stelprdb5356865>). The Science Report (Ruggiero et al. 2000) is a compilation and interpretation of scientific knowledge on lynx, its primary prey and habitat relationships. The LCAS (Ruediger et al. 2000; Interagency Lynx Biology Team 2013) builds upon this scientific base and identifies the risks to the species that may occur as a result of federal land management and recommends conservation measures to remove or minimize the identified risks. Collectively, the Science Report, the LCAS, other relevant science, and locally specific information as appropriate provide the best available scientific information. These scientific sources of information were reviewed to inform the lynx effects analysis in this biological assessment.

Analysis of the Baldy Mountain Landscape Resiliency and Habitat Improvement Project for Canada lynx and lynx habitat is based on the framework and incidental take statement established by the SRLA and supporting documents (USDA 2008) and the Biological Opinion (BO) issued by Fish and Wildlife Service (USDI 2008). Most of the impacts associated with the proposed project were addressed by these documents. This analysis builds on programmatic SRLA 2008 analysis by examining potential effects at the LAU scale. This analysis reviews the LAU and Forest scale caps under the SRLA Standards to ensure we stay within the original incidental take statement issued by U.S. Fish and Wildlife Service in 2008. Tracking and reporting to USFWS is completed annually

to ensure cumulative impacts meet Forest Plan and BO requirements. Annual reporting occurs in February each year to USFWS.

Annual reporting includes:

1. Status of VEG S1 in affected LAU. A trigger of 25% has been established to ensure no more than 30% of lynx habitat in an LAU will be converted to unsuitable. This includes both management caused and from natural disturbances (e.g wildfire).
2. Status of VEG S2 in affected LAU. A trigger of 10% has been established to ensure no more than 15% of lynx habitat in the LAU will be converted to unsuitable as a result of management actions.
3. Status of VEG S5 Forest-wide. Currently the Forest has a cap of 42,293 acres of pre-commercial thinning. In addition, no more than 1 percent of lynx habitat in an affected LAU will also be pre-commercially thinned.
4. Status of VEG S6 Forest-wide. Currently the Forest has 7,071 acre cap of high quality habitat that could be affected due to incidental loss from salvage, within 200 feet of dwellings. Sites, etc, or to complete uneven-aged management in spruce-fir.

Table 3. Environmental Baseline Statistics of Lynx Habitat within the Amphitheater LAU

Lynx Habitat Description	Acres of Lynx Habitat In the Amphitheater LAU (% of LAU)	Forest Service Acres (% of Habitat)	Non-Forest Service Acres (% of habitat)
Primary Suitable	21,082 (35%)	16,578 (79%)	4,504 (21%)
Secondary Suitable	5,313 (9%)	4,666 (88%)	647 (12%)
Total Lynx Habitat	26,395 (44%)	21,244 (81%)	5,151 (19%)
Non-Habitat	33,117 (56%)		
Total Acres in LAU	59,512		

Treatments in lynx habitat include prescribed fire (including hand lines and 100 foot fire buffers) mechanical thinning, and hand thinning. These treatments are designed to: decrease fuel loading to decrease the impacts from wildfire, increase edge habitat and forage and browse production, and diversify age classes amongst trees and shrubs. Most of the prescribed fire treatment areas include pre-treatment mechanically or the option to pre-treat mechanically. This will allow for a more controlled burn and to preserve aspects of the vegetation that are desirable such as large savannah-type oak and mature mixed-conifer. All of the lynx habitat affected by prescribed fire and hand crew treatments occur on the north and central part of the project area and are in secondary habitat and dominated by aspen with a smaller component of dry-mixed conifer. The mechanical treatments on the southern end of the project area, in which hand crew treatments may also occur, fall in lynx primary habitat and are dominated by spruce and fir species. These treatment types will allow for greater flexibility in conserving desirable habitat types such as areas of advanced regeneration and multi-storied stands that provide quality snowshoe hare habitat.

Acres of proposed treatments in lynx habitat will occur on the following ownerships: 387 Acres on National Forest, 27 acres on Bureau of Land Management, and 22 acres on Private Property (Table 4). The acres on BLM and private property were not included within the mapped habitat within the Forest boundary, which are accounted for in the SRLA Standards. However, the same forested stands extended onto these other ownerships and were included for analysis. Lynx habitat is

mapped as primary and secondary, based on the vegetation types and percent of spruce-fir in stands. Once mapped as lynx habitat, the primary and secondary distinctions have no influence on how lynx habitat management direction applies to the project. Conservation measures of the Lynx Conservation Assessment and Strategy (LCAS) and the SRLA apply to all lynx habitat. These definitions of lynx habitat are included here to provide more specific habitat data for the project area to better understand habitat components and habitat quality that may be influenced. Treatment units with lynx habitat are dominated by aspen and spruce-fir forest types. There is a diversity of forest structure, with most of the stands being multistoried.

The following Southern Rockies Lynx Amendment objectives, standards and guidelines are applicable to the Baldy Mountain Project where proposed activities occur within Canada lynx habitat in the Amphitheater Lynx Analysis Units:

- **Objective ALL O1:** Maintain or restore lynx habitat connectivity in and between Lynx Analysis Units (LAUs), and in linkage areas.
- **Standard ALL S1:** New or expanded permanent developments and vegetation management projects must maintain habitat connectivity in an LAU and/or linkage area.
- **Objective VEG O1:** Manage vegetation to mimic or approximate natural succession and disturbance processes while maintaining habitat components necessary for the conservation of lynx.
- **Objective VEG O2:** Provide a mosaic of habitat conditions through time that support dense horizontal cover, and high densities of snowshoe hare. Provide winter snowshoe hare habitat in both the stand initiation structural stage and in mature, multi-story conifer vegetation.
- **Objective VEG O3:** Conduct Fire use activities to restore ecological processes and maintain or improve lynx habitat.
- **Objective VEG O4:** Focus vegetation management in areas that have potential to improve winter snowshoe hare habitat but presently have poorly developed understories that lack dense horizontal cover.
- **Standard VEG S1:** If more than 30% of the lynx habitat in an LAU is currently in a stand initiation structural stage that does not yet provide winter snowshoe hare habitat, no additional habitat may be regenerated by vegetation management projects.
 - Limitation: LAU level standard – cannot exceed 30 percent of an LAU in an unsuitable condition.
 - LAU Cap Acres Remaining: 6,373
 - Acres Affected from Proposed Action: 387
 - LAU Cap Acre Balance: 5,986
 - Exemption Forest Cap Acres Remaining for treatment in WUI: 42,424
 - Exemption Acres Affected: 111
 - Exemption Forest Cap Balance: 42,313
- **Standard VEG S2:** Timber management projects shall not regenerate more than 15% of lynx habitat on NFS lands within an LAU in a ten-year period. Salvage harvest within

stands killed by insect epidemics does not add to the 15%, unless the harvest treatment changes the habitat to unsuitable.

- Limitation: LAU level standard – cannot exceed 15 percent of an LAU in an unsuitable condition from management actions.
- LAU Cap Acres Remaining: 3,959
- Acres Affected from Proposed Action: 387
- LAU Cap Acre Balance: 3,572
- Exemption Forest Cap Acres Remaining for treatment in WUI: 42,424
 - Exemption Acres Affected: 111
 - Exemption Forest Cap Balance: 42,313
- **Standard VEG S6:** Vegetation management projects that reduce winter snowshoe hare habitats in multi-story mature or late successional conifer forests may occur only: 1) within 200 feet of administrative sites, dwellings, outbuildings, etc.; 2) for research studies; 3) incidental removal during salvage harvest and 4) when uneven-aged management (resiliency – single tree and small group selection) are employed to maintain and encourage multi-story attributes as part of gap dynamics.
 - Exemption Forest Cap Acres Remaining for treatment in WUI: 42,424
 - Exemption Acres Affected: 111
 - Exemption Forest Cap Balance: 42,313
 - Exception Forest Cap Acres Remaining for Treatment: 7,071
 - Exception 1 Acres Affected: 4.9 (5)
 - Exception Forest Cap Acre Balance: 7,066
 - Exception 4 Acres Affected: 387
 - Exception 4 Forest Cap Acre Balance: Same as limits of VEG S1 and VEG S2
- **Guideline VEG G1:** Vegetation management projects should be planned to recruit a high density of conifers, hardwoods, and shrubs where such habitat is scarce or not available. Priority for treatment should be given to stem-exclusion, closed-canopy structural stage stands to enhance habitat conditions for lynx or their prey (e.g. mesic, monotypic lodgepole stands). Winter snowshoe hare habitat should be near denning habitat.
- **Guideline VEG G4:** Prescribed fire activities should not create permanent travel routes that facilitate snow compaction. Constructing permanent firebreaks on ridges or saddles should be avoided.
- **Guideline VEG G5:** Habitat for alternate prey species, primarily red squirrel, should be provided in each LAU.
- **Guideline VEG G10:** Fuel treatment projects within the WUI as defined by HFRA should be designed considering Standards VEG S1, S2, S5, and S6 to promote lynx conservation.
- **Guideline VEG G11:** Denning habitat should be distributed in each LAU in the form of pockets of large amounts of large woody debris, either down logs or root wads, or large piles of small wind thrown trees (“jack-strawed” piles). If denning habitat appears to be lacking in the LAU, then projects should be designed to retain some coarse woody debris, piles, or residual trees to provide denning habitat in the future.

These baseline statistics for objectives, standards and guidelines from the SRLA. The SRLA established forest-wide caps and LAU caps that are tracked annually and reported to Fish and Wildlife Service. All caps are considered maximum acres of impact that can occur over the life of the Amendment.

Table 4. Acres of Lynx Habitat Affected by Proposed Actions.

LAU	Acres of Suitable Habitat	Prescribed Fire Including buffers and firelines	Mechanical	Hand Crew	Total Acres lynx habitat converted to SISS
Amphitheater	26,395	228	132.9	44.4	465.3 ¹
BLM ³	27	27	0	0	27
Private Property Outside Forest Boundary ³	22	2.8	22	0	22 ²
Total	26,444	257.8	154.9	44.4	435.8 ⁴

¹ A total of 386.8 acres will be impacted however 78.5 acres of treatment overlap with other types of treatment.

² 2.8 acres will be impacted by both prescribed fire and mechanical treatments.

³These acres were calculated by assessing vegetation where Forest Service lynx habitat per the SRLA ended at the Forest Boundary and continued beyond the boundary.

⁴Using the 386.8 acre footprint plus BLM and private property acres.

VII. EFFECTS OF THE ALTERNATIVES

Compliance with SRLA Objectives, Standards and Guidelines

All objectives, standards and guidelines from the SRLA

(<https://www.fs.usda.gov/detail/r2/landmanagement/planning/?cid=stelprdb5356865>) were reviewed. The following are applicable to the proposed project. Table 7 provides the rationale on how the project meets the SRLA direction.

Table 5. Project consistency with all applicable SRLA objectives, standards and guidelines.

SRLA Direction	Compliance
Objective ALL O1	Lynx habitat will be maintained between LAUs. This project is not within or adjacent to a linkage area. Within lynx habitat all activities follow SRLA Management Direction. Mechanical thinning and hand crew treatment prescriptions will allow for maintenance of lynx habitat. Prescribed fire prescriptions will be for a moderate severity mosaic type burn in which parts of the stand will burn and others will not. Some primary and secondary habitat will be converted to a stand initiation structural stage but these conversions are not at a scale that would inhibit connectivity.
	There are no permanent developments which would disrupt habitat connectivity in the LAU or to adjacent LAUs. Since this project intends to maintain these treatments overtime with retreatments

Standard ALL S1	<p>every 10-20 years some aspects such as the fire line construction and road improvement access will be located in the same footprint. Although the fire lines and road improvements will be in the same footprint upon reentry, they will be rehabbed within one year of each entry. This may cause a slower recovery of vegetation upon each successive entry and may result in these areas not converting to a mature multi-storied habitat but instead be maintained as summer habitat for the life of the project. The road improvements through lynx habitat will be minimal with the road template already in place removal of trees and vegetation will be the only necessary improvements through the lynx habitat. The road widening which will occur at three different locations totaling 60 feet will occur outside of lynx habitat. These impacts would not be at the scale which would disrupt connectivity.</p>
Objective VEG O1	<p>Within lynx habitat the prescribed fire, mechanical and hand crew treatments will all be designed to improve age-class diversity and improve lynx habitat as the sites recover from the initial treatments. Initial improvements will be to lynx summer habitat and as these treatments occur over time, into the second and third reentries, the mosaic outcome will result in improved winter habitat intermixed with early successional summer habitat. Treatments in the wildland urban interface will strive to maintain lynx habitat while protecting private infrastructure from wildland fire.</p>
Objective VEG O2	<p>The desired mosaic outcome to vegetation from the proposed activities will meet this objective. See explanation for VEG O1.</p>
Objective VEG O3	<p>While this project does not involve “Fire Use” in terms of actively managing a naturally started wildfire it does involve using prescribed fire to treat vegetation and restore ecological processes. Fire use is defined in the SRLA Record of Decision as the combination of wildland fire use and using prescribed fire to meet resource objectives and therefore this objective is applicable to the proposal (SRLA ROD 2008). The combination of mechanical thinning the medium burning intensity that is desired for this project would result in a mosaic of burned and unburned areas of varying intensity. In turn, the proposed activities will give managers more options with naturally started fires in the future.</p>
Objective VEG O4	<p>This objective will not be met initially or in all areas in which activities are proposed. While the focus is to improve age-class diversity some areas of quality dense horizontal cover winter habitat will be impacted. The prescribed fire activities on the north end of the project area occur in secondary habitat and are dominated by Aspen with some mixed conifer including Douglas fir. Much of this stand is lacking adequate regeneration and the goal is to promote regeneration through the prescribed fire to stimulate aspen sprouting. It will take some time (5-10) for the aspen sprouts to reach the height at which they would be accessible for snowshoe hare during the winter. Much of the treatments on the south and west end of the project area are intended to reduce fuel loading in the wildland urban interface. These are mechanical and hand crew thinning acres in which treatment prescriptions can</p>

	account for promoting habitat but with the primary goal of improving private homes defensibility to wildfire, some adequate habitat could be moved to a stand initiation structural stage.
Standard VEG S1	This project meets this standard. The Amphitheater LAU has 26,395 acres of suitable habitat. This project will impact a total of up to 386.8 acres within the Forest Service Boundary that will be count against the 30% cap by 1.47%. Within this 386.8 acre footprint, 78.5 acres will be impacted subsequently by additional treatments which would reset this 78.5 acres again to a stand initiation structural stage. This is due to overlapping treatment types. Affected lynx habitat outside of the Forest Boundary was also calculated and up to 27 acres on Bureau of Land Management Land and 22 acres on private property will also be affected.
Standard VEG S2	According to the Biological Opinion (USDI FWS 2008) timber management in the Southern Rockies Lynx Amendment Area includes timber harvest, precommercial thinning, and salvage logging. The definition in the SRLA Record of Decision (USFS, 2008) is: “timber management consists of growing, tending, commercially harvesting, and regenerating crops of trees. While logging is not a proposed activity in this project, the proposed activities will regenerate trees; aspen in the short term and spruce-fir in the longer term within lynx habitat. A total of up to 1.47% of lynx habitat will be impacted by this proposal leaving 13.5% remaining for the next ten years of the 15% cap.
Standard VEG S6	This standard will be met by implementing the proposed activities. 4.9 acres of the proposed activities do fall within 200 feet of administrative sites, dwellings, outbuildings, etc. Additionally, all of the proposed activities are designed to have uneven-aged management effects and promote landscape and habitat resiliency and therefore fall under Exception 4. Some of the activities such as those within the wildland urban interface and fire line construction will have a greater impact on lynx habitat. The nature of these activities will result in a longer duration for these areas to recover from a stand initiation structural stage to quality lynx habitat.
Guideline VEG G1	Within lynx habitat the vegetation is expected to have a robust response from the implementation of the proposed activities. This will be especially true within the secondary lynx habitat where aspen is the dominant tree species. Shrubs will also respond positively to removing the overstory and resetting the succession in a mosaic type pattern resulting from the prescribed disturbances.
Guideline VEG G4	While there are proposed fire lines on ridges and saddles within lynx habitat on the northern boundary of prescribed fire units F3 and the northeast boundary of F9 these routes are not open to motorized travel in the winter per the Uncompahgre Travel Plan (USDA, 2002). A portion of these fire lines on Unit F9 are open to horseback and hikers on an already established corridor. Both of these fire lines are on ridges with one side predominately south facing and non-habitat with the north side being north facing and suitable lynx habitat. These fire lines don’t bisect large stands of

	contiguous habitat. These fire lines will be rehabbed post implementation by establishing water bars, scarifying if necessary and redistributing topsoil. It is also unlikely that these areas would receive horse or foot traffic in the winter especially in the vicinity of prescribed fire unit F3 as there aren't any system trails and a person would have to travel for several miles in challenging topography to get there.
Guideline VEG G5	This project may impact up to 199 acres of primary lynx habitat where Engelmann spruce, sub-alpine fir, and blue spruce are the dominant species of trees and where red squirrels would be most abundant. 51 acres of prescribed fire activities would have the highest impact of all proposed activities as it could consume down woody debris and kill cone producing spruce and fir trees. 148 acres of mechanical vegetation treatments including hydro-axe type machinery, and hand crews using chainsaws will not negatively impact all of the 148 acres. There is much more control and precision using these tools and very specific specifications will be used to minimize impacts to red-squirrel habitat. Secondary prey habitat will be preserved at the landscape scale of the LAU. In addition, all of these habitat acres are on the edge of suitable habitat in the LAU with extensive non-habitat as you continue east towards Hwy 550 and beyond.
Guideline VEG G10	Fuels treatments within the wildland urban interface will be designed to consider Canada lynx habitat. The objective of treatments in these areas are to protect private infrastructure from wildfire especially in close proximity to structures. All of these treatments will be completed by either heavy machinery or by hand crews using chainsaws.
Guideline VEG G11	The 51 acres of prescribed fire activity will likely reduce the quality of lynx denning habitat in this project as it burns in a mosaic pattern consuming ground fuels. The prescribed fire could also impact live trees killing them and turning them into snags. This would be most likely in burn unit F6 in which the objective is to disturb the aspen to promote sprouting. In the following years the snags would fall creating denning habitat. 98.5% of lynx habitat will not be impacted and at a landscape scale denning habitat will still be provided.

Direct and Indirect Effect to Canada lynx

The proposed activities include: mechanical thinning using masticating machinery or hand crews, prescribed fire using aerial ignition and/or hand crews, 100 foot burn buffers around prescribed fire units to reduce vegetation in closer proximity to fire lines, road improvements to provide masticating machinery access, hand crew treatments using chainsaws and hand tools, and a water development. These activities are proposed across the landscape east of Hwy 550 from just south of the Town of Ridgway to just north of the Town of Ouray Colorado. These activities will occur across private land, Forest Service managed land, and Bureau of Land Management Private Land. The analysis of direct, indirect, and cumulative effects (below) is applicable across all jurisdictions. See Table 1 for a breakdown of treatments per land ownership. A total of up to 386.8 acres of suitable lynx habitat will be impacted by the proposal and count against the GMUG National Forest

caps established in the Southern Rockies Lynx Amendment. In addition, 27 acres of suitable habitat on Bureau of Land Management Lands and 22 acres of lynx habitat on private land may be impacted. See Figure 6 below.

The primary factors driving lynx populations, behavior and distribution is the abundance and distribution of their primary prey, snowshoe hare. Vegetation management, natural fire, and insects can set back vegetation succession to an early seral stage, which may be used by hares during the summer but is snow-covered and thus unavailable to hares during the winter. Reudiger (et al. 2000) defines this early seral condition as “lynx habitat in unsuitable condition.” However, eventually these stands regenerate and provide high stem densities and horizontal structure extending above snowpack during the winter and become high quality snowshoe hare habitat. High quality lynx habitat contains an abundance of this early successional habitat (up to 30 percent of an LAU) within a mosaic of mid-to late-seral stands. Forest stands are considered to have returned to a suitable condition when the trees reach above the average winter snow level and provide forage and cover to snowshoe hare during winter months.

The **No Action Alternative** will have no immediate direct or indirect effects on Canada lynx or their habitat. Without management action fuels including trees and shrubs will continue to build up causing continued forest health decline from plant competition for resources. Leaving this area unmanaged could result in a higher risk for a large catastrophic wildfire which would have the potential to negatively impact large amounts of currently suitable habitat. Much of the mature spruce and fir in the lynx habitat is in decline from insect and disease. No action will result in the mature trees eventually falling over and creating microsites for regeneration and could provide Canada lynx denning habitat.

Mechanical Thinning and Hand Crew Treatments

Up to 154.9 acres of suitable lynx habitat will be treated with heavy machinery including 22 acres outside of the Forest Boundary on private land. 44.4 acres will be treated by hand crews within lynx habitat on the Forest. The majority of these acres occur on the south end of the project within the wildland urban interface (WUI). The priority objective for treatments within WUI will be for protection of WUI resources while considering VEG S1, S2, and S6 to promote lynx conservation. The ability to use these tools precisely to treat only the targeted vegetation will allow managers to create specifications to promote lynx habitat.

The objective of treatments outside of WUI is to reduce fuels and promote regeneration of aspen and shrubs, create multi-aged stands, and to aid in the control of prescribed fire activities. The intent is to reduce the threat of ignition, fire intensity, and to restore fire-adapted ecosystems. Treatments will not have a direct effect on lynx but will indirectly effect lynx habitat and the habitat of their prey. These activities will largely impact the understory and ladder fuels which will reduce habitat for snowshoe hare in the short term by resetting the habitat into a stand initiation structural stage.

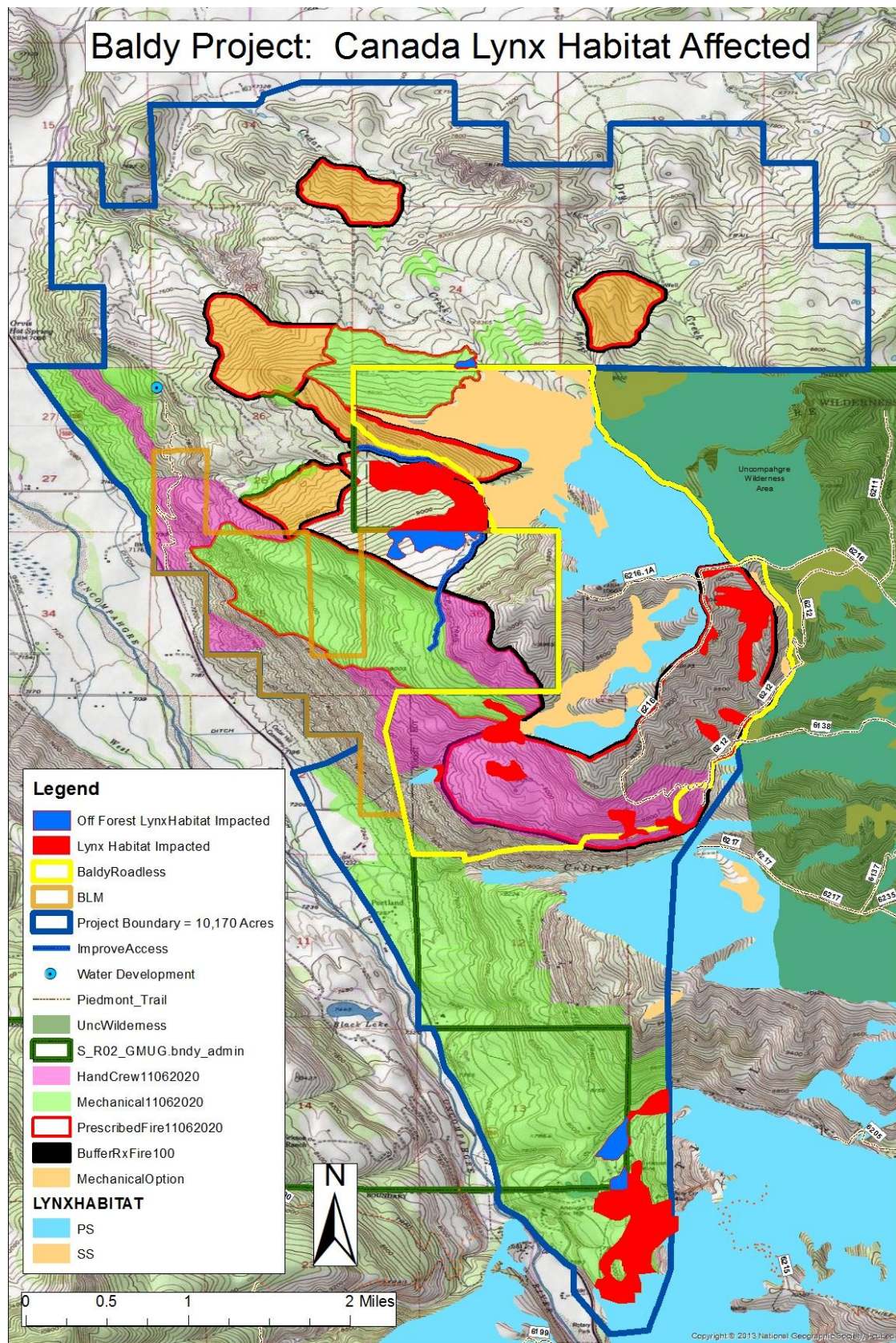


Figure 6. Lynx habitat in relation to proposed activities and habitat which may be impacted by proposal.

Prescribed Fire Treatments

Up to 257.8 acres including lynx habitat on BLM and private property outside of the Forest Boundary may be impacted. Burning may be implemented aerially or by fire crews. The activities considered in this category include 100-foot fire line buffers, and fire lines to mineral soil. Much of the burn area boundaries are based on existing trails or two-track roads in the area. As burn plans are created and implementation is planned fire managers will utilize landscape features such as rocky or bare slopes to contain fire to avoid the need for creating fire lines where there isn't already a disturbance. Fire managers will also consider seasonality in burn planning where fires on south slopes may be implemented while the north slope is still holding snow or moisture further reducing the need for new fire lines. As the project progresses and treated areas adjacent to prescribed burn areas will also act as a buffer and fire containing feature.

It is generally acknowledged that fire suppression in the Southern Rocky Mountains has altered historic vegetative patterns. This effect has been most pronounced within vegetation communities that have fire regimes that are of low intensity or mixed-severity. Many of these are drier community types and are not considered lynx habitat. Spruce-fir habitats (lynx habitat) appear to have been little or less affected by fire suppression because the fire regimes within this type tend to be stand replacing events occurring at low frequencies (i.e., every 100 years or more) (Agee, 2000). Depending on the moisture regime, large stand-replacing fires within lynx habitat may produce dense regenerating growth, providing high quality snowshoe hare foraging habitat after approximately 10 to 30 years. While this vegetative condition provides high quality snowshoe hare habitat, mature forests also are very important as winter foraging habitat (Mckelvey et al. 2000d).

Fire intensity tends to be high in most of the forest types where lynx habitat is found. This creates conditions for extensive even-aged patches of regenerating conifer forest to occur (Ruggiero, 2000). These high intensity fires spread during unusual weather conditions (e.g., Johnson and Wowchuck, 1993) and under those conditions the fire is unmanageable. The portions of southern boreal forests where lynx have not historically been found tend to have a more mixed fire intensity and a moderate-severity fire regime (Agee 1993). These may be more open timberline environments, such as the western boreal forest with whitebark pine, or lower elevation forest with more fire-tolerant conifers.

Although crown fires are common, fires of lower intensity do occur in boreal forests where lynx historically occurred, although they typically are a small proportion of the total fire area. In areas where fuels are limited due to site conditions, moderate intensity fires may occur and multi-aged stands may result (Heinselman 1981; Gauthier et al. 1993; Roberts and Mallik 1994).

Fire is important for maintaining high-quality habitat for Canada lynxes and their primary food source, snowshoe hares (Grange 1965 & Poole et al., 1996). In the western portion of the Canada lynx's range, fire exclusion may have contributed to the Canada lynx's decline (Mowat & Slough, 2003). Fires that create a mosaic of successional stages are most beneficial for providing foraging and denning areas for Canada lynxes (Allen, 1987). Fire may have negative impacts on Canada lynxes and snowshoe hares in the short term due to reduced food and cover (Koehler and Brittell 1990, Parker et al, 1983). As succession progresses, the amount of browse increases, and snowshoe hares become more abundant [121]. Canada lynx populations increase in response to high snowshoe hare densities (Heinselman 1970, Koehler and Brittell 1990). The capacity of burned areas to support high snowshoe hare and Canada lynx densities declines over time. In later stages of succession, less herbage is within reach for snowshoe hares, decreasing their population, and subsequently, the Canada lynx population (Fox 1978, Heinselmann 1970).

The Canada lynx requires a landscape containing early and late-successional habitats and may be positively or negatively affected by fire (Kelleyhouse 1979, Wright 1973). In general, wildlife species that are associated with early successional vegetation may benefit from fuel reduction treatments. Species associated with late-successional habitat with features such as a closed canopy, a dense understory, and/or coarse woody debris may be negatively affected by fuel reduction treatments. The Canada lynx requires both, so the effects of fuel reduction on Canada lynxes may vary with the management history of an area, current habitat condition, landscape setting, and prescribed fire attributes such as size, type, frequency, and season. Canada lynxes may not be affected by fuel reduction on the stand level due to their large home ranges (Pilliod et al. 2006).

Snowshoe hares often abandon fresh burns if cover is sparse and nutritious browse is available elsewhere (Keigh and Surrendi 1971). Snowshoe hares attain peak populations 5 to 30 years following fire, especially in habitat dominated by quaking aspen and birch (*Betula* spp.) (Heinselman 1973). In northern latitudes, stands approximately 40 years old may provide optimal conditions for snowshoe hares. In southern latitudes where succession occurs at a quicker rate, 15- to 30-year-old stands may provide the best habitat for snowshoe hares (Fox 1978). Little data exist on the use of recent burns by Canada lynxes (Fisher 2005). Fifteen- to 30-year-old burned areas provide optimal foraging habitat for Canada lynxes in boreal forests (Fisher 2005 and Koehler 1990) but 5- to 50-year-old burned areas may be used (Paragi 1997 and Poole et al, 1996). In the western United States, fire creates seral landscapes that are often dominated by lodgepole pine, which benefit snowshoe hares and Canada lynxes (Mowat 2003).

Canada lynxes require mature forests for denning and raising kittens; however, no information is currently available about the optimal age forest age for denning habitat. Following fire, it is important to leave fire-killed trees to stabilize the soil and contribute to wildlife habitat for the Canada lynx and its prey (DellaSala et al, 1995).

Most red squirrels probably escape most fires and avoid most burned areas where crown fires had removed the tree canopies. The maintenance of many mature coniferous forest types is often dependent on fire. Ponderosa pine, Douglas-fir, lodgepole pine, whitebark pine, and spruces are either dependent on stand-replacing fires for regeneration or on low-severity fires for maintenance. Even though severe fire is immediately destructive of red squirrel habitat, the long-term maintenance of most coniferous forests is dependent on fire (Kozlowski et al, 1974).

Road Improvement

The road which is proposed for improvement is also acting as the burn boundary of prescribed fire unit F6 and a portion of F3. The road template is already in place and is more of a narrow two-track road. The actual road improvements where widening is necessary is located outside of lynx habitat. The activities that will occur along the road fall within the 100' Fire Buffer. The effects from the fire buffer are discussed are included in the Prescribed Fire and Mechanical Thinning effects above. The road improvements will have no direct or indirect impacts on Canada lynx.

Water Development

The proposed water development will not have any impact on Canada lynx. The spring, nor any of the proposed infrastructure, is within habitat of lynx or their prey.

Noise Impacts

Noise impacts from masticating machinery, hand crews, and helicopter use for prescribed fire could impact lynx by causing lynx to avoid the action area. Lynx are primarily active at night, and since activities would occur during the day, this is expected to be a minor effect and a short-term

impact. It is not likely that lynx will be in the area during implementation. A subset of the lynx reintroduced to Colorado during the 1999-2006 time period that were radio-collared showed no lynx use in the project area (Theobald and Shenk 2011).

Cumulative Effects

Under NEPA, cumulative impacts are the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. In contrast, under ESA the estimated effects of future federal activities are not included, because those future federal actions will be subject to their own Section 7 consultation at the appropriate time.

The project will add cumulatively to the Canada lynx baseline in terms of a slight increase in the amount of habitat temporarily affected from the project activities. The cumulative effects of the project activities combined with existing uses in the action area (human uses of roads, recreation, livestock grazing and activities associated with private land inholdings and residences) may influence lynx use of the landscape by temporarily causing area avoidance within and/or adjacent to the project activities or influence animal distribution and the timing of movements within the affected landscape. The lynx habitat in the northern portion of the project area is difficult to access and human uses and recreation will affect these areas less. Private land development is likely to have the greatest impact on lynx and their habitat in the southern portion of the project area. However, much of this area is already developed and the disturbance from Hwy 550 will continue to be there. Other than the proposed vegetation management treatments on the private property described in this BA, there are no other known reasonably foreseeable future actions on non-federal lands that would add to the effects of the project.

When combining the direct and indirect effects of the proposed activities with the past, present, and reasonably foreseeable nonfederal activities in the action area, it is unlikely that the proposed action would add cumulatively to existing impacts on the lynx to the point that an individual lynx or its home range would be adversely affected. This rationale is based on the difficulty of the public to access much of the project area and the mostly non-contiguous habitat on the periphery of suitable lynx habitat in the Amphitheater LAU. In addition, Theobald and Shenk (2011) found no lynx use of the project area in their monitoring study.

Table 6. Summary of SRLA Exemptions and Exceptions used for this project.

LAU Name	Acres of Treatment within WUIs under Exemptions to VEG S1, S2, and S6	Acres of Treatment under Exception 4 to VEG S6 (acres) ¹
Amphitheater	111	387

VIII. DETERMINATIONS OF EFFECT AND RATIONALE

Mexican spotted owl

Strix occidentalis lucida

Fuels reduction treatments, though critical to reducing the risk of severe wildland fire, can have short-term adverse effects to owls through habitat modification and disturbance. However, high-intensity, stand replacing fires are probably the greatest threat to the MSO.

Because the Mexican spotted owl is not known to occur near the action area this proposal will have **no effect** on this species. It is plausible these owls could one day occupy this area. The proposed treatments would conserve this habitat resulting in a future beneficial impact.

Canada lynx

Lynx canadensis

The proposed action **May affect** the Canada lynx due to:

- General disturbance and noise associated with implementation of the proposed action including aerial ignition for prescribed fire, heavy machinery and personnel crews.
- All impacted acres are accounted for including 27 acres on BLM land and 22 acres on private property. This analysis includes the potential to move all acres into a stand initiation structural stage however the potential for this to actually occur is only higher in the lynx habitat which may be affected by prescribed fire in which approximately 258 acres will be implemented. The prescribed fire will be initiated under conditions which would promote a medium severity burn which would not be intended to be stand replacing. The acres of habitat which will be impacted from mechanical and hand thinning are within the Wildland Urban Interface. Priority treatments in these areas will be given to protection of the WUI resources while striving to promote Canada lynx habitat features. These treatments can be more precise as far as the vegetation being affected is considered and it is unlikely that all of the suitable habitat will be converted to a stand initiation structural stage.

The proposed action is **not likely to adversely affect** the Canada lynx because:

- The effects are expected to be short term and lynx habitat in the stand initiation structural stage is also important habitat in proximity to mature multi-storied spruce and fir habitat.
- Activities will not occur in lynx high, medium or low intensity use areas and the project does not occur in a core population area.
- The likelihood of a lynx being present when activities occur is remote and unpredictable.
- The abundance of higher quality habitat within the LAU not impacted by this proposal and where lynx have been documented will remain the same.
- At the LAU scale 1.47% of suitable lynx habitat will be impacted by the proposal in the Amphitheater LAU leaving 98.53% unaffected.

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United States Department of the Interior

FISH AND WILDLIFE SERVICE

Western Colorado Ecological Services Field Office

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Grand Junction, CO 81501-5711

Phone: (970) 628-7180 Fax: (970) 245-6933

<http://www.fws.gov/mountain-prairie/es/Colorado/http://www.fws.gov/platteriver/>



In Reply Refer To:

February 12, 2021

Consultation Code: 06E24100-2021-SLI-0245

Event Code: 06E24100-2021-E-00497

Project Name: Baldy Mountain Project

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at: <http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.html>
<http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>

http://

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Migratory Birds
- Wetlands

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Western Colorado Ecological Services Field Office

445 West Gunnison Avenue, Suite 240

Grand Junction, CO 81501-5711 (970)

628-7180

Project Summary

Consultation Code: 06E24100-2021-SLI-0245

Event Code: 06E24100-2021-E-00497

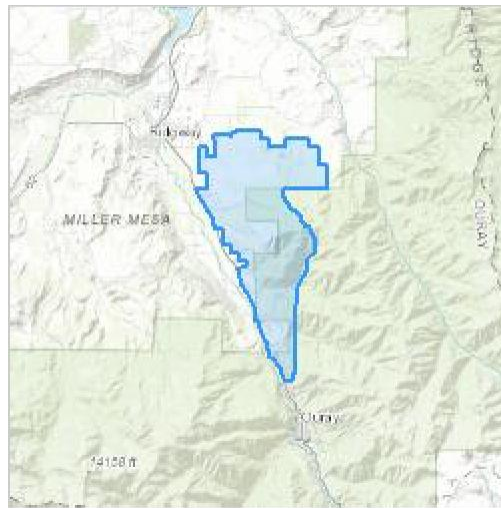
Project Name: Baldy Mountain Project

Project Type: VEGETATION MANAGEMENT

Project Description: Bighorn Sheep habitat enhancement and fuels reduction work done through prescribed fire and mastication across multiple boundaries.

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@38.0997615,-107.6866473,9545716,14z>



Counties: Ouray County, Colorado

Endangered Species Act Species

There is a total of 7 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Canada Lynx <i>Lynx canadensis</i> Population: Wherever Found in Contiguous U.S. There is final critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/3652	Threatened

Birds

NAME	STATUS
Mexican Spotted Owl <i>Strix occidentalis lucida</i> There is final critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/8196	Threatened
Yellow-billed Cuckoo <i>Coccyzus americanus</i> Population: Western U.S. DPS There is proposed critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/3911	Threatened

Fishes

NAME	STATUS
Bonytail <i>Gila elegans</i> There is final critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/1377	Endangered
Colorado Pikeminnow (=squawfish) <i>Ptychocheilus lucius</i> Population: Wherever found, except where listed as an experimental population There is final critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/3531	Endangered
Humpback Chub <i>Gila cypha</i> There is final critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/3930	Endangered
Razorback Sucker <i>Xyrauchen texanus</i> There is final critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/530	Endangered

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

USFWS National Wildlife Refuge Lands And Fish Hatcheries

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

Migratory Birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

-
1. The [Migratory Birds Treaty Act](#) of 1918.
 2. The [Bald and Golden Eagle Protection Act](#) of 1940.
 3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern](#) (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Black Swift <i>Cypseloides niger</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8878	Breeds Jun 15 to Sep 10
Brewer's Sparrow <i>Spizella breweri</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9291	Breeds May 15 to Aug 10
Brown-capped Rosy-finch <i>Leucosticte australis</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Jun 15 to Sep 15

NAME	BREEDING SEASON
Golden Eagle <i>Aquila chrysaetos</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/1680	Breeds Jan 1 to Aug 31
Olive-sided Flycatcher <i>Contopus cooperi</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3914	Breeds May 20 to Aug 31
Rufous Hummingbird <i>selasphorus rufus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8002	Breeds elsewhere
Veery <i>Catharus fuscescens salicicola</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds May 15 to Jul 15
Virginia's Warbler <i>Vermivora virginiae</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9441	Breeds May 1 to Jul 31

▪ Probability Of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence ()

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum

probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.

3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Breeding Season ()

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort ()

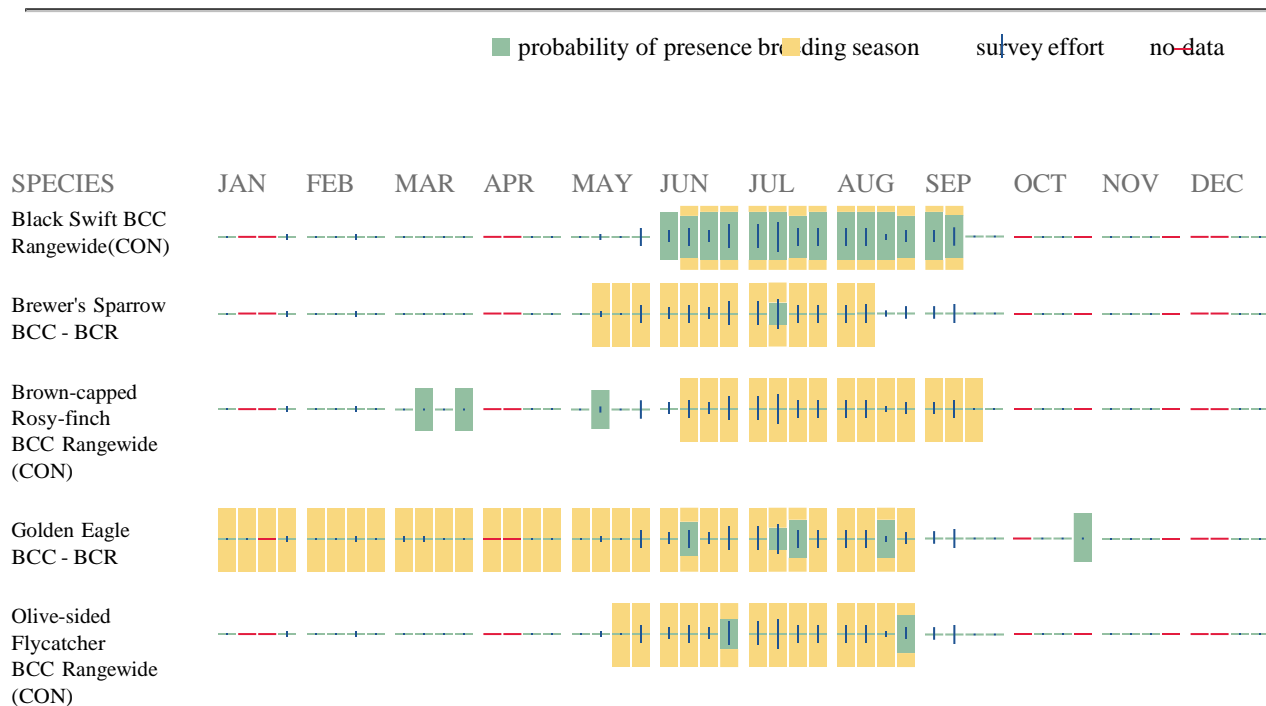
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

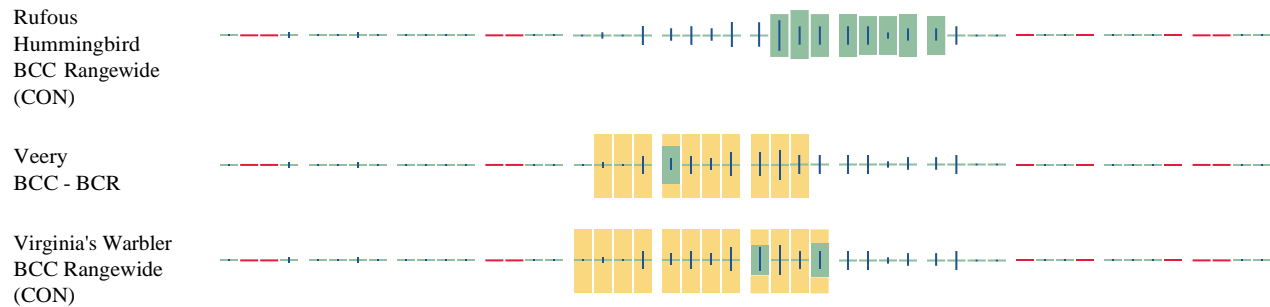
No Data ()

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.





Additional information can be found using the following links:

- Birds of Conservation Concern <http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>
- Measures for avoiding and minimizing impacts to birds <http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>
- Nationwide conservation measures for birds <http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf>

Migratory Birds FAQ

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [AKN Phenology Tool](#).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: [The Cornell Lab of Ornithology All About Birds Bird Guide](#), or (if you are unsuccessful in locating the bird of interest there), the [Cornell Lab of Ornithology Neotropical Birds guide](#). If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides

birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Wetlands

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

FRESHWATER POND

- [PABF](#)
- [PABFh](#)
- [PABGb](#)
- [PABGh](#)
- [PUSC](#)
- [PUSCh](#)

FRESHWATER EMERGENT WETLAND

- [PEM1A](#)
- [PEM1B](#)
- [PEM1C](#)
- [PEM1Ch](#)

FRESHWATER FORESTED/SHRUB WETLAND

- [PSS1A](#)
- [PSS1B](#)

RIVERINE

- [R3UBF](#)
 - [R3USC](#)
 - [R4SBA](#)
 - [R4SBC](#)
 - [R4SBCx](#)
 - [R5UBFx](#)
 - [R5UBH](#)
 - [R3UBH](#)
-

APPENDIX B: BEST MANAGEMENT PRACTICES FOR NOXIOUS & INVASIVE SPECIES

Design Features

- Complete a pre-treatment survey to determine what noxious and invasive weeds are present, pre-treat area for noxious weed, put noxious weed management plan in place if necessary.
- Reduce damage to non-target plants by educating the weed control team on how to identify target and non-target plants.
- Use only biological control agents that have been tested and approved to ensure they are host specific.
- Notify the public of any proposed project level treatments greater than 150 acres (as opposed to spot treatment of weeds) that utilize herbicides in their adjacent area.
- Complete additional site specific environmental analysis for any large acreage blanket treatment (greater than 150 acres).
- BLM would work with individual organic or other producers to determine if a larger buffer zone would be more appropriate. All aerial herbicide application near organic production would be with a helicopter and would follow all BLM buffers restrictions above.
- Aerial application on projects or fire rehabilitation in sensitive areas would occur with a helicopter when possible instead of fixed wing for better placement and control of herbicide drift. All label restrictions would be followed in terms of wind speed, drift, and application of herbicide.
- Appropriate herbicide, application timing, methods and rates would be selected to reduce kill and damage to non-target species while still achieving effective noxious weed control.
- For aerial herbicide application, re-vegetation would be required unless the native community was considered adequate to recover within 3 years post treatment.
- All heavy equipment would be cleaned (e.g. power washed) to prevent the introduction of weed seed prior to working on public lands.

Standard Operating Procedures

- Prepare spill contingency plan in advance of treatment.
- Select herbicide products carefully to minimize additional impacts from degradates, adjuvants, inert ingredients, and tank mixtures.
- Have licensed applicators apply and/or qualified supervisor monitor herbicide applications.
- Review, understand, and conform to the “Environmental Hazards” section on the herbicide label. This section warns of known pesticide risks to the environment and provides practical ways to avoid harm to organisms or the environment.
- Consider surrounding land use before assigning aerial spraying as a treatment method and avoid aerial spraying near agricultural or densely populated areas.
- Minimize the size of application areas, when feasible.
- Keep copy of Safety Data Sheets (SDSs) at work sites. SDSs available for review at <http://www.cdms.net/>.
- Keep records of each application, including the active ingredient, formulation, application rate, date, time, and location.
- Conduct pre-treatment surveys for sensitive habitat and special status species within or adjacent to proposed treatment areas.
- Refer to the herbicide label when planning revegetation to ensure that subsequent vegetation would not be injured following application of the herbicide.
- Complete vegetation treatments seasonally before pollinator foraging plants bloom.
- Time vegetation treatments to take place when foraging pollinators are least active both seasonally and daily.
- Design vegetation treatment projects so that nectar and pollen sources for important pollinators and resources are treated in patches rather than in one single treatment.

- Avoid using glyphosate formulations that include the adjuvant R-11 in aquatic ecosystems and either avoid using formulations with the surfactant POEA or seek to use the formulation with the lowest amount of POEA available to reduce risks to amphibians and aquatic organisms.
- Use a selective herbicide and a wick or backpack sprayer to minimize risks to special status plants.
- Avoid use of diquat in riparian pasture while pasture is being used by livestock.
- Notify permittees of the project to improve coordination and avoid potential conflicts and safety concerns during implementation of the treatment.
- Notify permittees of livestock grazing, feeding, or slaughter restrictions, if necessary.
- Provide alternative forage sites for livestock, if possible.
- Implement herbicide treatments during periods of low human use, where feasible.
- Schedule treatments to avoid peak recreational use times, while taking into account the optimum management period for the targeted species.
- Notify the public of treatment methods, hazards, times, and nearby alternative recreation areas.
- Post signs noting exclusion areas and the duration of exclusion, if necessary.
- Control public access until potential treatment hazards no longer exist.
- Consult with Native American tribes and Alaska Native groups to locate any areas of vegetation that are of significance to the tribe and that might be affected by herbicide treatments.
- Native American Traditional Cultural Properties (TCPs) are to be considered in the planning and completion of federal actions in accordance with Section 106 of the NHPA, as amended (Guidelines of Bulletin 38 of the National Register). Physically affecting the integrity of traditional cultural properties, including plant collecting places, should be avoided when possible. To protect and preserve Native American religious practices, the Executive Order of May 24, 1996 requires the implementation of "procedures to ensure reasonable notice of proposed actions or land management policies that may restrict future access to or ceremonial use of, or adversely affect the physical integrity of, sacred sites." This notice further states, "where appropriate, agencies shall maintain the confidentiality of sacred sites." The UFO will protect TCPs in consultation with the appropriate tribal representatives.

Best Management Practices

A. Site-Disturbing Projects

Pre-project Planning

- Environmental analyses for projects and maintenance programs should assess weed risks, analyze high-risk sites for potential weed establishment and spread, and identify prevention practices.
- Determine site-specific restoration and monitoring needs and objectives at the onset of project planning.
- Learn to recognize noxious and invasive weeds.
- Inventory all proposed projects for weeds prior to ground-disturbing activities. If weeds are found, they would be treated (if the timing was appropriate) or removed (if seeds were present) to limit weed seed production and dispersal.
- Restrict movement of equipment and machinery *from* weed-contaminated areas *to* non-contaminated areas.
- Locate and use weed-free project staging areas. Avoid or minimize travel through weed infested areas, or restrict travel to periods when spread of disseminules is least likely.
- Identify sites where equipment can be cleaned. Remove mud, dirt, and plant parts from project equipment before moving it into a project area. Seeds and plant parts should be collected and incinerated when possible.

Project Implementation

- Minimize soil disturbance. To the extent practicable, native vegetation should be retained in and around project activity areas, and soil disturbance kept to a minimum.
 - If a disturbed area must be left bare for a considerable length of time, cover the area with weed barrier until revegetation is possible.
-

Post-project

- Clean all equipment before leaving the project site when operating in weed infested areas.
- Inspect, remove, and properly dispose of weed seed and plant parts found on clothing and equipment. Proper disposal means bagging and incinerating seeds and plant parts or washing equipment in an approved containment area.
- Revegetate disturbed soil where appropriate to optimize plant establishment for that specific site. Define revegetation objectives for each site. Revegetation may include topsoil replacement, planting, seeding, fertilization, and certified weed-free mulching as necessary. Use native material where appropriate and feasible.
- Monitor sites where seed, hay, straw, or mulch has been applied. Eradicate weeds before they form seed. In contracted projects, contract specifications could require that the contractor control weeds for a specified length of time.
- Inspect and document all ground-disturbing activities in noxious weed infested areas for at least three growing seasons following completion of the project. For ongoing projects, continue to monitor until reasonably certain that no weeds are present. Plan for follow-up treatments based on inspection results.

B. Grazing Management

- Consider prevention practices and cooperative management of weeds in grazing allotments. Prevention practices may include:
 - Altering season of use
 - Minimizing ground disturbance
 - Exclusion
 - Preventing weed seed transportation
 - Maintaining healthy vegetation
 - Revegetation
 - Inspection
 - Education
 - Reporting
- Provide certified weed-free supplemental feed in a designated area so new weed infestations can be detected and treated immediately. Pelletized feed is unlikely to contain viable weed seed.
- If livestock may contribute to seed spread in a weed-infested area, schedule livestock use prior to seed-set or after seed has fallen.
- If livestock were transported from a weed-infested area, annually inspect and treat entry units for new weed infestations.
- Manage the timing, intensity (utilization), duration, and frequency of livestock activities to maintain the competitive ability of desirable plants and retain litter cover. The objective is to prevent grazers from selectively removing desirable plant species and leaving undesirable species.
- Exclude livestock grazing on newly seeded areas with fencing to ensure that desired vegetation is well established, usually after 2-3 growing seasons.
- Inspect areas of concentrated livestock use for weed invasion, especially watering locations and other sensitive areas that may be particularly susceptible to invasion. Inventory and manage new infestations.

C. Wildlife

- Periodically inspect and document areas where wildlife concentrate in the winter and spring and cause excess soil disturbance.
- Use weed-free materials for all wildlife management activities.
- Incorporate weed prevention into all wildlife habitat improvement project designs.

D. Fire***Fire Management Plans***

- Prescribed fire plans should include pre-burn invasive weed inventory and risk assessment components as well as post-burn mitigation components.
- Integrate prescribed fire and other weed management techniques to achieve best results. This may involve post-burn herbicide treatment or other practices that require careful timing.
- Include weed prevention and follow-up monitoring in all prescribed fire activities. Include in burn plans the possibility for post-burn weed treatment.

Post-fire Rehabilitation

- Have a weed specialist review burned area rehabilitation reports to ensure proper and effective weed prevention and management is addressed.
- Thoroughly clean the undercarriage and tires of vehicles and heavy equipment before entering a burned area.
- Treat weeds in burned areas. Weeds can recover as quickly as 2 weeks following a fire.
- Schedule inventories 1 month and 1 year post-fire to identify and treat infestations. Eradicate or contain newly emerging infestations.
- Restrict travel to established roads to avoid compacting soil that could hinder the recovery of desired plants.
- Inspect and document weed infestations on fire access roads, equipment cleaning sites, and staging areas. Control infestations to prevent spread within burned areas.
- Seed and straw mulch to be used for burn rehabilitation (for wattles, straw bales, dams, etc.) should be certified weed-free.
- Replace soil and vegetation right side up when rehabbing fire line.

Conservation Measures for Listed, Proposed or Candidate Threatened or Endangered Species**A. GENERAL**

- The BLM will identify appropriate application methods, including rate, time, and mode of application (source characterization) for projects involving the use of herbicides.
 - The BLM will provide all weed applicators with pertinent information developed during preparation of the ERAs cited in the PEIS and PBA (BLM 2007b, c) to evaluate the potential for deleterious chemical exposures to plant and animal species of special concern from use of herbicides to treat weed infestations. Information on the chemical characteristics of the herbicide, the mode and rate of application of the herbicide, and local environmental conditions (e.g., soil type, rainfall) will be considered in this evaluation. The resultant exposure risks can then be compared to a table listing risk levels to determine the potential for an acute or chronic risk to the species of interest. Risk levels for TEPC species are provided in the ERAs.
 - The BLM will incorporate SOPs, mitigation measures, and conservation measures identified in the PEIS and PBA or in future ERAs and BAs that address herbicides, TEPC species, and site conditions similar to those for projects in the UFO area.
 - The BLM will use herbicides in a manner consistent with labeling instructions, design criteria, and any issued reasonable and prudent measures with terms and conditions to ensure that unlawful taking of a TEPC species does not occur. In the unanticipated and unlikely event of an adverse effect on any TEPC species, formal consultation will be initiated with the USFWS pursuant to ESA Section 7 for species not considered for formal consultation under this BA/BO. The biological opinion (BO) issued by the USFWS at the conclusion of that process will include a statement exempting the BLM from the prohibitions against the “take” of a listed species under the incidental take provisions of ESA Section 9.
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B. PLANTS

The following must be included with all weed management plans involving Herbicides Proposed for Use within 600 Feet or Less of TEPC Plant Species:

- An inventory will be conducted to determine presence/absence and map the locations of TEPC plant species prior to conducting any chemical control within 600 Feet or Less of TEPC Plant Species.
- The Fish and Wildlife Service would be apprised of all planned herbicide treatments, with the potential for detrimental impacts, within occupied habitat prior to application.
- Manual control (pulling weeds) would be the preferred method of control within occupied habitat unless: the weed infestation is too large to economically preform, or if the weed species cannot be controlled with manual methods.
- The UFO will use only the five herbicides listed in Table 6 to manage weeds within 600 feet or less of TEPC terrestrial plants or populations.
- All herbicides proposed for use within 600 feet of TEPC plants with the exception of Glyphosate and Imazapic will be applied by spot application only.
- Monitoring will be established prior to herbicide treatments within occupied TEPC plant habitat. Monitoring will be designed to assess impacts to TEPC individuals or populations, efficacy of weed management, as well as aid in adapting future weed management within occupied TEPC plant habitats to limit impacts.
- BLM Applicators, cooperators, and contractors will be trained to recognize TEPC plant species, and will be familiar with the locations of occupied habitat within the UFO. Weed application crews would be provided with maps of known TEPC plant locations.
- Mixing and cleaning of herbicides will not occur within occupied TECP plant habitats.
- Motorized herbicide application equipment would be restricted to existing roads and trails within 600 feet of known TEPC individuals or populations.
- To further limit the potential for damaging TEPC plants, application equipment and calibrations (i.e. spray pressure and droplet size) will be selected to deliver sprays which minimize atomized drift in situations where herbicide could potentially contact herbaceous surfaces of TEPC plants.
- Where practical TEPC plants would be covered to prevent herbicide contact from ground based herbicide application within 15 feet of individuals or populations.
- Where practical when noxious weeds are interspersed with TEPC plants wicking will be the preferred application method used.
- Chlorsulfuron and Metsulfuron Methyl will only be used for hoary cress (whitetop) control, currently not within occupied habitat but within 600 feet of occupied habitat.
- Only non-ionic surfactants would be utilized within 600 feet of TEPC plants or populations.
- Within 600 feet of TEPC plants or populations Imazapic will only be utilized at the maximum rate for fall treatment of Russian knapweed.
- Aerial application of Glyphosate or Imazapic will not exceed the application rates described in Table 6 within occupied habitats.
- For active restoration of occupied cactus habitats aerial application of Glyphosate or Imazapic will be considered for plant communities that have $\geq 50\%$ composition invasive nonnative annuals. Only nonionic surfactants would be utilized in these scenarios.
- For fire disturbances in occupied cactus habitats aerial application of Glyphosate or Imazapic will be considered for plant communities that have $\geq 15\%$ composition invasive nonnative annuals. The full array of approved surfactants would be available for use.
- The UFO in coordination and cooperation with the Fish and Wildlife Service and Denver Botanic Gardens would seek to actively reestablish TEPC plant populations degraded by weed management activities. A full array of reestablishment actions or experiments would be pursued i.e. direct reseeding, green house raised transplants etc.

Herbicides Proposed for Use within 600 Feet of TEPC Plant Species^{1, 2, 3}

Active Ingredient	Buffer Width	Method(s) to Which Applied
Chlorsulfuron	<600 feet	Ground, ≤ 1 oz./acre ³ equal to 0.047 lbs acid equivalent/acre
	1,500 feet	Aerial
Clopyralid	<600 feet/ Within Occupied Habitat	Ground, ≤ 16 oz./acre ³ equal to 0.37 lbs acid equivalent/acre
	0.5 mile	aerial
Glyphosate	Within Occupied Habitat	Ground, ≤ 12oz./acre ³ equal to 0.281 lbs acid equivalent/acre
	Within Occupied Habitat	Ground, maximum rate; aerial ≤ 12 oz./acre ³
Imazapic	Within Occupied Habitat	Ground, typical or maximum rates
	Within Occupied Habitat	Aerial ≤ 6oz./acre ³ equal to 0.093 lbs acid equivalent/acre
	900 feet	Aerial, maximum rate
Metsulfuron Methyl	<600 feet	Ground ≤ 1.5 oz./acre ³ equal to 0.056 lbs acid equivalent/acre
	0.5 mile	Ground or aerial, maximum rate

1 Source: BLM 2007a

2 See Appendix A for information related to aquatic species and other specific situations (e.g., areas vulnerable to wind erosion of treated soil.

3. Source: Herbicide Handbook Weed Science Society of America 9th Edition 2007

At a minimum, the following must be included with all weed management plans:

- Survey all proposed treatment areas within potential TEPC habitat by a botanically qualified biologist, botanist, or ecologist to determine the presence/absence of the species.
- Establish pre-treatment monitoring programs to track the size and vigor of TEPC populations and the state of their habitats. These monitoring programs would help in anticipating the future effects of vegetation treatments on TEPC plant species.
- Assess the need for site re-vegetation post treatment to minimize the opportunity for noxious weed invasion and establishment.

The following considerations must also be addressed in the plans:

To avoid negative effects to TEPC plant species from offsite drift, surface runoff, and/or wind erosion, establish suitable buffer zones between treatment sites and known or suspected of TEPC plants and apply the site-specific precautions outlined below.

2,4-D

- Do not apply within 0.5 mile of terrestrial TEPC plants or aquatic habitats containing aquatic TEPC plants.
- Do not use aquatic formulations in aquatic habitats containing aquatic TEPC plants.

Bromacil

- Do not apply aurally.
- Do not apply within 1,200 feet of terrestrial TEPC plants.
- Do not apply within 100 feet of aquatic habitat containing aquatic TEPC plants when using a low

boom at the typical rate.

- Do not apply within 900 feet of aquatic habitat containing aquatic TEPC plants when using a low boom at the maximum rate or a high boom at either rate.
- Do not apply within 0.5 mile of TEPC plants in areas where wind erosion is likely.

Chlorsulfuron

- Do not apply aerially within 1,500 feet of terrestrial TEPC plants.
- Do not apply aerially at the typical application rate within 1500 feet of aquatic habitats containing aquatic TEPC plants.
- Do not apply aerially at the maximum application rate within 0.5 mile of aquatic habitats containing aquatic TEPC plants.
- Do not apply by ground methods within 25 feet of terrestrial TEPC plants in soils with a pH >6, 100 feet for soils with a pH < 6.
- Do not apply by ground methods within 25 feet of aquatic habitats containing aquatic TEPC plants.

Clopyralid

- Do not apply aerially within 0.5 mile of terrestrial TEPC plants.
- Do not apply within 600 feet of terrestrial TEPC plants when using a low boom at the typical rate.
- Do not apply within 0.5 mile of terrestrial TEPC plants or aquatic habitats containing aquatic TEPC plants when using a high boom at the rate maximum rate.
- Do not apply within 0.5 mile of TEPC plants in areas where wind erosion is likely.

Dicamba

- Do not apply within 1,050 feet of terrestrial TEPC plants.
- Do not apply within 25 feet of aquatic habitats containing aquatic TEPC plants.
- Do not apply within 0.5 mile of TEPC plants in areas where wind erosion is likely.

Di flufenzopyr

- Do not apply aerially.
- Do not apply within 100 feet of terrestrial TEPC plants using a low boom at the typical rate.
- Do not apply within 900 feet of terrestrial TEPC plants using a low boom at the maximum rate.
- Do not apply within 500 feet of terrestrial TEPC plants using a high boom at either rate.
- Do not apply within 25 feet of aquatic habitats containing aquatic TEPC plants.
- Do not apply within 0.5 mile of TEPC plants in areas where wind erosion is likely.

Diquat

- Do not apply aerially within 1,200 feet of terrestrial TEPC plants.
- Do not apply by ground methods within 900 feet of terrestrial TEPC plants at the typical rate.
- Do not apply by ground methods within 1,000 feet of terrestrial TEPC plants at the maximum rate.
- Do not use in aquatic habitats containing aquatic TEPC plants.

Diuron

- Do not apply aerially.
- Do not apply within 1,100 feet of terrestrial TEPC plants.
- Do not apply within 900 feet of aquatic habitats containing aquatic TEPC plants when using a low boom at the typical rate.
- Do not apply within 1,100 feet of aquatic habitats containing aquatic TEPC plants when using a low boom at the maximum rate or a high boom at either rate.
- Do not apply within 0.5 mile of TEPC plants in areas where wind erosion is likely.

Fluridone

- Do not apply within 0.5 mile of terrestrial TEPC plants.

Glyphosate

- Do not apply aerially within 300 feet of terrestrial TEPC plants unless the rate is less than or equal to 12oz/acre and outside the primary growing season.
- Do not apply within 50 feet of terrestrial TEPC plants when using a low boom at the typical rate.
- Do not apply within 100 feet of terrestrial TEPC plants when using a low boom at the maximum rate or a high boom at either rate.
- Do not apply within 300 feet of terrestrial TEPC plants unless the rate is less than or equal to 12oz/acre and outside the primary growing season. .

Hexazinone

- Do not apply aerially within 0.5 mile of terrestrial TEPC plants or aquatic habitats containing aquatic TEPC plants.
- Do not apply within 300 feet of terrestrial TEPC plants or aquatic habitats containing aquatic TEPC plants when using a low boom at the typical rate.
- Do not apply within 900 feet of terrestrial TEPC plants or aquatic habitats containing aquatic TEPC plants when using a low boom at the maximum rate.
- Do not apply within 0.5 mile of terrestrial TEPC plants or aquatic habitats containing aquatic TEPC plants when using a high boom at either rate.
- Do not apply within 0.5 mile of TEPC plants in areas where wind erosion is likely.

Imazapic

- Do not apply aerially within 600 feet of terrestrial TEPC plants unless the rate is less than or equal to 6 oz/acre.
 - Do not apply aerially at the maximum rate within 900 feet of terrestrial TEPC plants.
 - Do not apply aerially at the typical rate within 100 feet of aquatic habitats containing aquatic TEPC plants.
 - Do not apply aerially at the maximum rate within 300 feet of aquatic habitats containing aquatic TEPC plants.
- Do not apply within 0.5 mile of TEPC plants in areas where wind erosion is likely.

Imazapyr

- Do not apply within 900 feet of terrestrial TEPC plants or aquatic habitats containing aquatic TEPC plants at the typical rate when using aerial or ground methods at the typical rate.
- Do not apply within 0.5 mile of terrestrial TEPC plants or aquatic habitats containing aquatic TEPC plants when using aerial or ground methods at the maximum rate.
- Do not use aquatic formulations in aquatic habitats containing aquatic TEPC plants.
- Do not apply within 0.5 mile of TEPC plants in areas where wind erosion is likely.

Metsulfuron Methyl

- Do not apply aerially within 1,500 feet of terrestrial TEPC plants.
 - Do not apply aerially at the typical application rate within 1500 feet of aquatic habitats containing aquatic TEPC plants.
 - Do not apply aerially at the maximum application rate within 0.5 mile of aquatic habitats containing aquatic TEPC plants.
 - Do not apply by ground methods within 25 feet of terrestrial TEPC plants.
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- Do not apply by ground methods within 25 feet of aquatic habitats containing aquatic TEPC plants.

Overdrive® (dicamba + diflufenzopyr)

- Do not apply aerially.
- Do not apply within 100 feet of terrestrial TEPC plants when using a low boom at the typical rate.
- Do not apply within 900 feet of terrestrial TEPC plants when using a low boom at the maximum rate or a high boom at either rate.
- Do not apply within 25 feet of aquatic habitats containing aquatic TEPC plants.
- Do not apply within 0.5 mile of TEPC plants in areas where wind erosion is likely.

Picloram

- Do not apply within 0.5 mile of terrestrial TEPC plants.
- Do not apply aerially.

Sulfometuron Methyl

- Do not apply within 1,500 feet of terrestrial TEPC plants.
- Do not apply aerially within 1,500 feet of aquatic habitats containing aquatic TEPC plants.
- Do not apply by ground methods within 900 feet of aquatic habitats containing aquatic TEPC plants.
- Do not apply within 0.5 mile of TEPC plants in areas where wind erosion is likely.

Tebuthiuron

- Do not apply within 25 feet of terrestrial TEPC plants when using a low boom at the typical rate.
- Do not apply within 50 feet of terrestrial TEPC plants when using a low boom at the maximum rate or a high boom at the typical rate.
- Do not apply within 900 feet of terrestrial TEPC plants when using a high boom at the maximum rate.
- Do not apply within 25 feet of aquatic habitats containing aquatic TEPC plants.
- Do not apply within 0.5 mile of TEPC plants in areas where wind erosion is likely.

Triclopyr Acid

- Do not apply aerially at the typical rate within 500 feet of terrestrial TEPC plants at the typical rate.
- Do not apply aerially at the maximum rate within 0.5 mile of terrestrial TEPC plants or aquatic habitats containing aquatic TEPC plants.
- Do not apply within 300 feet of terrestrial TEPC plants using a low boom at the typical rate.
- Do not apply within 0.5 mile of terrestrial TEPC plants or aquatic habitats containing aquatic TEPC plants when using a low boom at the maximum rate or a high boom at either rate.
- If applying to aquatic habitats containing aquatic TEPC plants occur, do not exceed the targeted water concentration on the product label.
- Do not apply within 0.5 mile of TEPC plants in areas where wind erosion is likely.

Triclopyr BEE

- Do not apply aerially at the typical rate within 500 feet of terrestrial TEPC plants or aquatic habitats containing aquatic TEPC plants.
- Do not apply aerially at the maximum rate within 0.5 mile of terrestrial TEPC plants or aquatic habitats containing aquatic TEPC plants.
- Do not apply within 300 feet of terrestrial TEPC plants or aquatic habitats containing aquatic TEPC plants when using a low boom at the typical rate.
- Do not apply within 0.5 mile of terrestrial TEPC plants or aquatic habitats containing aquatic TEPC plants when using a low boom at the maximum rate or a high boom at either rate.
- Do not use aquatic formulations in aquatic habitats containing aquatic TEPC plants.
- Do not apply within 0.5 mile of TEPC plants in areas where wind erosion is likely.

Conservation Measures Related to Revegetation Treatments

APPENDIX B

- **Outside riparian areas**, avoid hydromulching within buffer zones established at the local level. This precaution will limit adding sediments and nutrients which increase water turbidity.
- **Within riparian areas**, engage in consultation at the local level to ensure re-vegetation activities incorporate knowledge of site-specific conditions and project design.

Conservation Measures Related to Herbicide Treatments

- Maintain equipment used for transportation, storage, or application of chemicals in a leak-proof condition.
- Strictly enforce all herbicide labels as they are the **LAW**.

Follow all instructions and SOPs to avoid spilling or directly spraying herbicides into aquatic habitats.

APPENDIX C: DESIGN TECHNIQUES FOR VISUAL RESOURCE MANAGEMENT

A. LANDFORM/WATER BODY.

1. Reduce Size of Cut and Fill Slopes. Consider:
 - a) relocating to an area with less slope.
 - b) changing road width, grade, etc.
 - c) changing alignment to follow existing grades.
 - d) prohibiting dumping of excess material on downhill slopes.
2. Reduce Earthwork Contrasts. Consider:
 - a) rounding and/or warping slopes.
 - b) retaining rocks, trees, drainage, etc.
 - c) toning down freshly broken rock faces with asphalt emulsion spray or with gray point.
 - d) adding mulch, hydromulch, or topsoil.
 - e) shaping cuts and fills to appear as natural forms.
 - f) cutting rock areas so forms are irregular.
 - g) designing to take advantage of natural screens (i.e., vegetation, land forms).
 - h) grass seeding of cuts and fills.
3. Maintain the Integrity of Topographic Units. Consider:
 - a) locating projects away from prominent topographic features.
 - b) designing projects to blend with topographic forms in shape and placement.

B. VEGETATION.

1. Retain Existing Vegetation. Consider:
 - a) using retaining walls on fill slopes.
 - b) reducing surface disturbance.
 - c) protecting roots from damage during excavations.
2. Enhance Revegetation. Consider:
 - a) mulching cleared areas.
 - b) controlling planting times.
 - c) furrowing slopes.
 - d) planting holes on cut/fill slopes.
 - e) choosing native plant species.
 - f) stockpiling and reusing topsoil.
 - g) fertilizing, mulching, and watering vegetation.

APPENDIX C

3. Minimize Impact on Existing Vegetation. Consider:
 - a) partial cut instead of clear cut.
 - b) using irregular clearing shapes.
 - c) feathering/thinning edges.
 - d) disposing of all slash.
 - e) controlling construction access.
 - f) utilizing existing roads.
 - g) limiting work within construction area.
 - h) selecting type of equipment to be used.
 - i) minimizing clearing size (i.e., strip only where necessary).
 - j) grass seeding of cleared areas.
4. Maintain the Integrity of Vegetative Units. Consider:
 - a) utilizing the edge effect for structure placement along natural vegetative breaks.

C. STRUCTURES.

1. Minimize the Number of Visible Structures.
 2. Minimize Structure Contrast. Consider:
 - a) using earth-tone paints and stains.
 - b) using cor-ten steel (self-weathering).
 - c) treating wood for self-weathering.
 - d) using natural stone surfaces.
 - e) burying all or part of the structure.
 - f) selecting paint finishes with low levels of reflectivity (i.e., flat or semi-gloss).
 3. Redesign Structures that do not Blend/Fit. Consider:
 - a) using rustic designs and native building materials.
 - b) using natural appearing forms to complement landscape character (use special designs only as a last resort).
 - c) relocating structure.
 4. Minimize Impact of Utility Crossings. Consider:
 - a) making crossings at right angles.
 - b) setting back structures at a maximum distance from the crossing.
 - c) leaving vegetation along the roadside.
 - d) minimizing viewing time.
 - e) utilizing natural screening.
 5. Recognize the Value and Limitations of Color. Consider:
 - a) that color (hue) is most effective within 1,000 feet. Beyond that point
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APPENDIX C

- b) color becomes more difficult to distinguish and tone or value determines visibility and resulting visual contrast.
- c) that using color has limited effectiveness (in the background distance zone) in reducing visual impacts on structures that are silhouetted against the sky.
- d) painting structures somewhat darker than the adjacent landscape to compensate for the effects of shade and shadow.
- e) selecting color to blend with the land and not the sky.